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[illegible] CANCER INSTITUTE

ANNUAL REPORT

October 1, 1977 through September 30, 1978

Part 1

OFFICE OF THE DIRECTOR

U.S. NATIONAL CANCER INSTITUTE
REPORT OF PROGRAM ACTIVITIES
ANNUAL REPORT

October 1, 1977 through September 30, 1978

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NATIONAL CANCER INSTITUTE

ANNUAL REPORT

Introduction

In 1978, NCI Director, Dr. Arthur C. Upton, initiated a reorganization of the Institute designed to separate program management from grant and contract administration, and from the peer review of grants and contracts. To that end grant portfolios and responsibility for their program management were transferred from the Division of Cancer Research Resources and Centers (DCRRC) to other NCI Divisions that manage similar or related programs. Responsibility for all grants and contracts peer review activities were transferred from other Divisions to the DCRRC. The reorganization has accomplished a clear separation of program management from peer review activities; brought the NCI organization structure more into conformity with other NIH Institutes; and increased the opportunity for grant applications to compete for extramural dollars.

The reorganization precipitated several program level organizational changes in the Institute. In the Division of Cancer Biology and Diagnosis (DCBD) the former Collaborative Research Program together with immunology contracts and grants portfolios assigned to DCBD became the Extramural Research Program. The intramural laboratories and branches are now part of the Intramural Research Program except for in-house immunology research which was consolidated into an Immunology Intramural Research Program.

The Viral Oncology Program and the Carcinogenesis Research Program in the Division of Cancer Cause and Prevention (DCCP) were reorganized. All DCCP intramural laboratories are now located in the Carcinogenesis Intramural Program while carcinogenesis grant and contract activities for the Division are in the Carcinogenesis Extramural Program. The Carcinogenesis Testing Program was renamed the Bioassay Program and the Field Study and Statistics Program consolidated its newly acquired grants activities with its contracts activities in an Office of Extramural Research.

The Division of Cancer Treatment (DCT) absorbed its new grants portfolios without change to its four current programs: Cancer Therapy Evaluation Program, Clinical Oncology Program, Developmental Therapeutics Program and the newly renamed Baltimore Cancer Research Program (formerly Baltimore Cancer Research Center).

At this writing the Biological Research Program, the Training and Education Program and the Centers and Treatment Program in the Division of Cancer Research Resources and Centers were to be abolished, however a new organizational structure reflecting the functions of the Divisions was under development.

Under the reorganization, DCRRC became responsible for the following contract peer review committees:

- Committee on Cancer Immunobiology
- Committee on Cancer Immunodiagnosis
- Commiteee on Cancer Immunotherapy
- Clinical Trials Committee
- Developmental Therapeutics Committee
- Cancer and Nutrition Scientific Review Committee
- Biometry and Epidemiology Contract Review Committee
- Virus Cancer Program Scientific Review Committee
- Carcinogenesis Program Scientific Review Committee
- Cancer Control and Rehabilitation Advisory Committee
- Community Activities Review Committee

No program level changes are anticipated in the Division of Cancer Control and Rehabilitation (DCCR).

STAFF CHANGES, ACTIVITIES, HONORS AND AWARDS
1978

Meritorious Service Award

Dr. William Terry

NIH Directors Award

Dr. Richard D. Costlow
Dr. Thaddeus Domanski
Dr. Gene Shearer
Mr. Robert E. Spallone
Dr. Louise Thompson
Mr. J. Paul Van Nevel

PHS Superior Service Award

Maniel S. Barbieto
Dr. Emma Shelton

PHS Special Recognition Award

Ms. Elaine B. Bratic
Dr. Edward M. Scolnic

PHS Commendation Award

Dr. John C. Bailer
Dr. Vincent H. Bono
Dr. James C. Cradock
Dr. Donald G. Fox
Dr. Chester Herman
Dr. Frederick P. Li
Dr. William P. McGuire
Dr. William L. Roberson
Dr. Nathaniel A. Young

Distinguished Service Medal

Dr. Alan S. Rabson, Director, DCBD

Staff Changes

Dr. Stuart A. Aaronson appointed Chief, Laboratory of RNA Tumor Viruses
Dr. Cipriano Cueto appointed Chief, Toxicology Branch, DCCP
Dr. John S. Driscoll appointed Deputy Chief, Laboratory of Medicinal Chemistry and Biology, DIP, DCT

Dr. Eli J. Glatstein, (Expert), appointed Chief, Radiation Oncology Branch, COP, DCT

Dr. Richard A. Griesemer, (Expert), appointed Associate Director Carcinogenesis Testing Program, DCCP

Dr. Robert J. Huebner appointed Scientific Coordinator for Immunoprevention, VOP, DCCP

Dr. Ira Klein, (Expert), appointed Chief, Office of the Coordination for Collaborative Research, DCCP

Dr. John B. Maloney named Acting Assistant Director of NCI

Dr. Ihor J. Masnyk appointed Associate Director, Extramural Research Program, DCBD

Mr. Henry C. Noyes, (Expert), named Chief, Office of Planning and Analysis, DCCR

Dr. Gregory T. O'Conor named Director, DCCP

Dr. Earl S. Pollack appointed Chief, Biometry Branch, DCCP

Dr. Jeffrey Schlom appointed Head, Tumor Virus Detection Section, Laboratory of Viral Carcinogenesis, VOP

Dr. Raymond Weiss, (Expert), appointed Chief, Clinical Investigations Branch, CTE, DCT

Dr. Peter H. Wiernik appointed Associate Director, Baltimore Cancer Research Center, DCT

Program Activities Report
Fiscal Year 1977-78
Editorial Office of the National Cancer Institute

The Board of Editors reviewed 2,210 items for publication during the 12-month period July 1, 1977, to June 30, 1978. Of this total number, 896 manuscripts and 383 abstracts were intended for publications other than the Journal of the National Cancer Institute (JNCI). The 931 manuscripts submitted for publication in JNCI were from the following sources:

National Cancer Institute: 89 (35 accepted, 15 rejected, 39 pending)
Other research institutions: 842 (300 accepted, 287 rejected, 255 pending or withdrawn)

Of the 896 manuscripts received from sources outside the National Cancer Institute, 281 were from authors in other countries, including Argentina, Belgium, Brazil, Bulgaria, Canada, Czechoslovakia, Denmark, England, Federal Republic of Germany, Finland, France, German Democratic Republic, India, Ireland, Israel, Italy, Japan, Jordan, Mexico, New Zealand, Poland, Romania, Russia, Scotland, Singapore, Sweden, Switzerland, Thailand, The Netherlands, and Yugoslavia; and the continents of Africa, Australia, and South America.

Volume 59 (July-December 1977) contained 1,828 pages, whereas volume 60 (January-June 1978) contained 1,526 pages. Volume 59 comprised seven issues instead of the usual six: In August 1977, the regular scientific issue was published in addition to a special issue commemorating the Fortieth Anniversary of the National Cancer Institute. This anniversary issue, with its bright red cover, traced the progress of Congressional legislation to establish NCI to the national and international impact of the current National Cancer Program.

The printing and binding of Volumes 59 and 60 were contracted out by the Government Printing Office (GPO) to Western Publishing Company, Cambridge, Maryland. After several months when the contractor was found to be unable to produce the quality of printing necessary for the Journal, the GPO transferred the contract for the remaining issues to Waverly Press, Easton, Maryland.

Early in 1978, a new cover design for the Journal and certain internal changes in format and page layout were devised by a contractor for the NIH Medical Arts and Photography Branch. This "new look" for the Journal starts with the July 1978 issue.

Work was completed under a contract with King Research, Incorporated (a general survey research corporation) to survey a probability sample of each of three JNCI "constituencies": authors and would-be authors, readers and potential readers, and institutional subscribers. The survey was evolved to provide information needed for appropriate long-range planning regarding several publication options, quality of the scientific content of the Journal, and convenience of access in use. The survey was highly successful; a summ of the final report is now being prepared for publication. Results showed that the Journal is generally regarded very highly by each of the three above-named constituencies and that few changes are indicated in any of the major topics covered by the survey.

Between July 1, 1977, and June 30, 1978, six Monographs were in various stages of production. The status of each Monograph follows:

- Modern Concepts in Brain Tumor Therapy: Laboratory and Clinical Investigations (No. 46). Published April 1978; 250 pp.
- Epidemiology and Cancer Registries in the Pacific Basin (No. 47). Published April 1978; 182 pp.
- Third Decennial Review Conference: Cell, Tissue, and Organ Culture (No. 48). To be published August 1978; 401 pp.
- Workshop on Genitourinary Cancer Immunology (No. 49). To be published October 1978; approx. 370 pp.
- International Conference on Ultraviolet Carcinogenesis (No. 50). In press; approx. 170 pp.
- Perinatal Carcinogenesis (No. 51). Manuscripts being edited.

Contractor assistance was used only for galley proofreading of Monograp 48. The editing and proofreading of Monographs 49, 50, and 51 is being accomplished by the Monograph Editor.

A monograph containing a compilation and updating of all Guest Editorials that have appeared in the Journal through 1978 has been approved. These Editorials will be published as Monograph 52.

The demand for Monographs 43 and 45, previously published, has been great enough during the past year to require second-printings. These monographs are now available.

INTERNATIONAL ACTIVITIES OF THE NATIONAL CANCER INSTITUTE

INTRODUCTION:

Following upon the mandate of the National Cancer Act of 1971, the National Cancer Institute has accepted an increasingly greater share of the responsibility for the conduct of a multifaceted, worldwide attack in the battle against cancer.

Active participation in the coordination of the cancer activities of intergovernmental, nongovernmental and bilateral agencies has notably increased. A definite trend has been recognized in the combining of scientific talent and other resources of these participants in a multidisciplinary approach to the solution of cancer problems.

In concert with international bodies and scientists from foreign institutions, the NCI is becoming increasingly aware of the crucial factors in improving the quantity and quality of health services required for coping with cancer detection and treatment. More realistic priorities for cancer research are being considered continuously with implementation of those holding greatest promise for the benefit of the cancer patient.

There is little doubt that progress has been made not only at the domestic level, but internationally as well, in our understanding of cancer as a basic biologic phenomenon and as a major public health problem. For instance, striking differences in geographic, environmental and social conditions of peoples throughout the world suggest that these variations must have a critical influence on the incidence and the types of cancer prevelant in a given area.

By sharing and partaking of international cancer research resources, the National Cancer Institute can ensure more rapid advances in basic research, clinical management and control of cancer. And since it has been established that most human cancers are caused by environmental factors, the prevention of certain cancers seems feasible through the control and elimination of carcinogenic agents in the environment. However, successful cancer prevention is contigent not on the effort of a single institute or a nation, rather upon an effective coordinated approach of global magnitude.

Accordingly, the international contribution of NCI to the struggle against cancer includes: 1.) the continuing support of research in cancer outside of the United States by foreign scientists who are highly qualified and reputed by an unique expertise; 2.) the support of cooperative research programs, principally, under bilateral agreements with foreign governments, institutions or organizations; 3.) maintenance of liaison and research collaboration with international organizations and agencies which have well-defined objectives in cancer research and cancer treatment/prevention;

THE INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB) PROGRAM

Since it became operational in 1974, the ICRDB Program has been actively promoting and facilitating the exchange of information between cancer scientists throughout the world. Established by the National Cancer Act of 1971, this mission of the ICRDB Program has been accomplished by: 1.) the development and operation of several on-line computer data bases; 2.) publication of a number of technical bulletins; and 3.) the support of a variety of specialized information collection, analysis and dissemination activities. Figure 1 illustrates the matrix of activities of the ICRDB Program--from the source of information to services and information products. These activities are described in the following sections.

Computer Data Bases--THE CANCERLINE SYSTEM:

The CANCERLINE System (Figure 1) consists of three computer data bases for dispersing the resources of the vast, international cancer information system of the ICRDB Program.

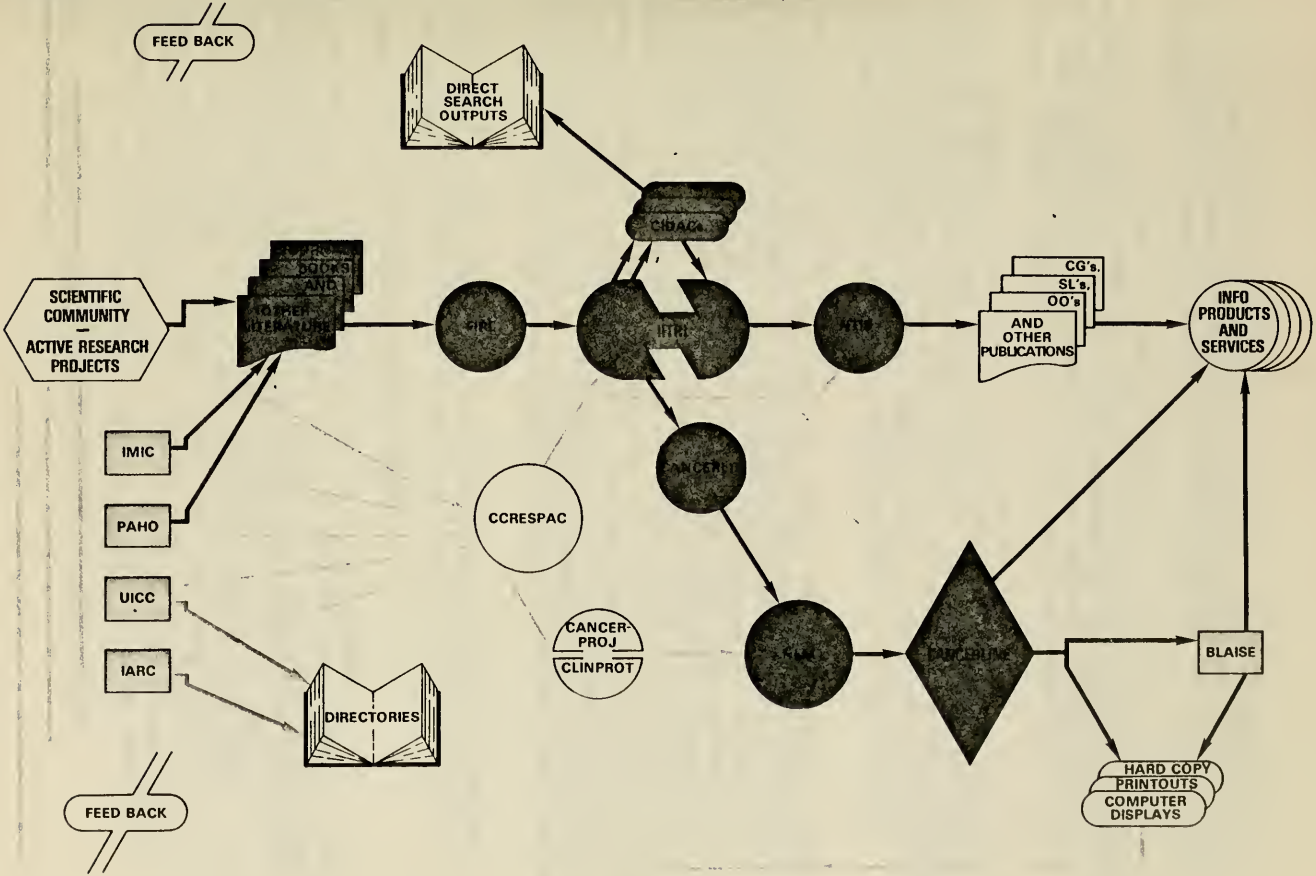
The first of these data bases--CANCERLIT (CANCER LITerature)--now contains more than 130,000 abstracts of published literature dealing with all aspects of cancer. These are selected from more than 3,000 biomedical journals and other sources, including papers presented at meetings, books, monographs, technical reports and theses. Abstracts are selected by screening journals within five days after they arrive at the library of the screening and abstracting contractor (FIRL, Figure 1). The contractor is required to prepare abstracts in magnetic tape format within thirty days (domestic) and forty-two days (foreign) after an article is selected for inclusion in the CANCERLIT data base. This data base is growing at the rate of nearly 3,000 abstracts per month or about 36,000 abstracts per year (Figure 2). It is updated monthly so that the most recent research results are rapidly available to cancer researchers.

The second data base--CANCERPROJ (CANCER PROJects)--contains more than 20,000 descriptions of current, ongoing cancer research projects, (Figure 1). Included are more than 3,000 descriptions collected by data input coordinators located in more than 60 different countries. Projects supported through government sources as well as by private funds are included in this data base. CANCERPROJ is updated every three months.

CLINPROT (CLINical PROTocols) is the third data base, containing outlines of some 1,000 protocols or summaries of clinical investigations of new procedures which are currently being evaluated for the treatment of cancer patients. These protocols are provided by major American cancer centers and by many of the foreign oncologic institutes.

CANCERLINE is accessed by computer terminals connected to the central computer facility located at the National Library of Medicine, National Institutes of Health, Bethesda, Maryland, (Figure 1). These terminals are

ICRDB PROGRAM MATRIX of ACTIVITIES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SCIENTIFIC COMMUNITY – ACTIVE RESEARCH PROJECTS
BOOKS AND OTHER LITERATURE
IMIC
PAHO
UICC
IARC
DIRECTORIES
CIRI
IITRI
CIDAC
DIRECT SEARCH OUTPUTS
CG's, SL's, OO's AND OTHER PUBLICATIONS
INFO PRODUCTS AND SERVICES
CCRESPAC
CANCER-PROJ
CLINPROT
CANCERLIT
NLM
CANCERLINE
BLAISE
HARD COPY PRINTOUTS COMPUTER DISPLAYS
FEED BACK

FIGURE 3: CANCERLINE USAGE

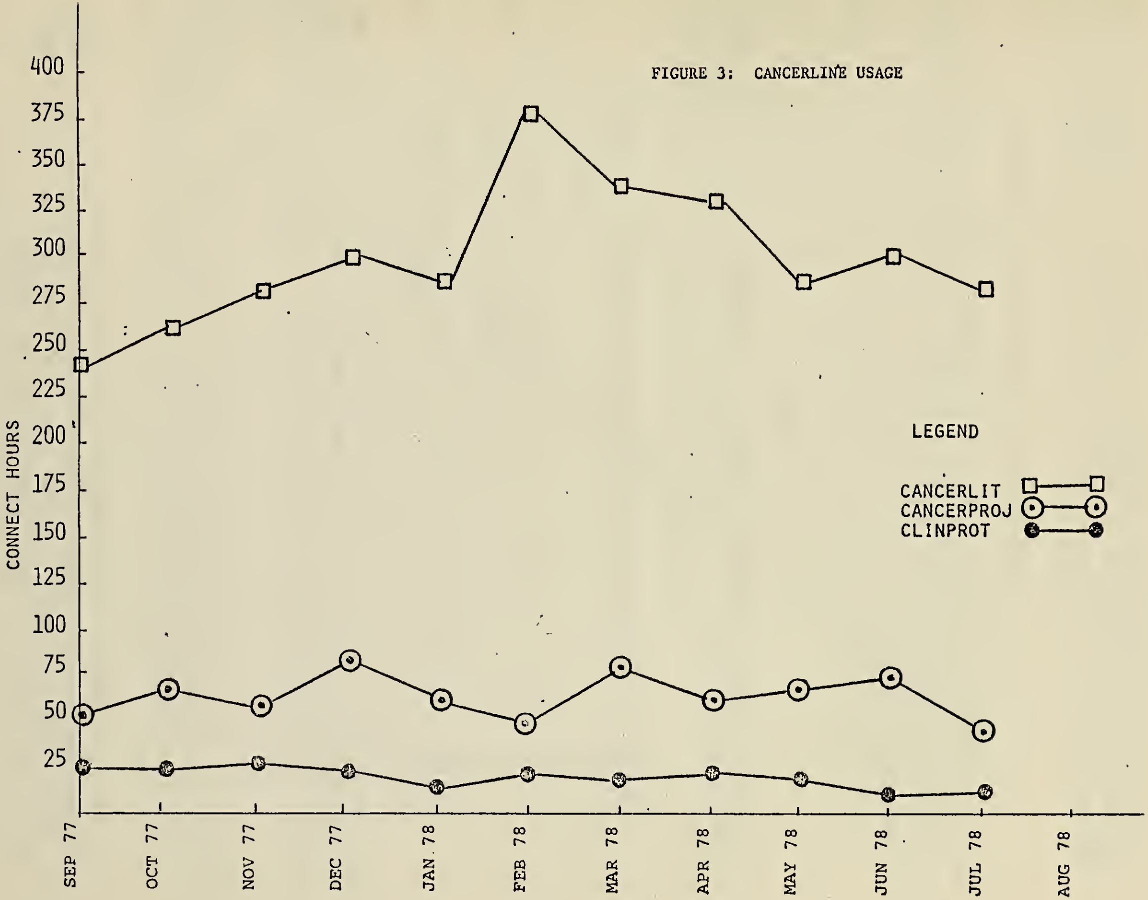
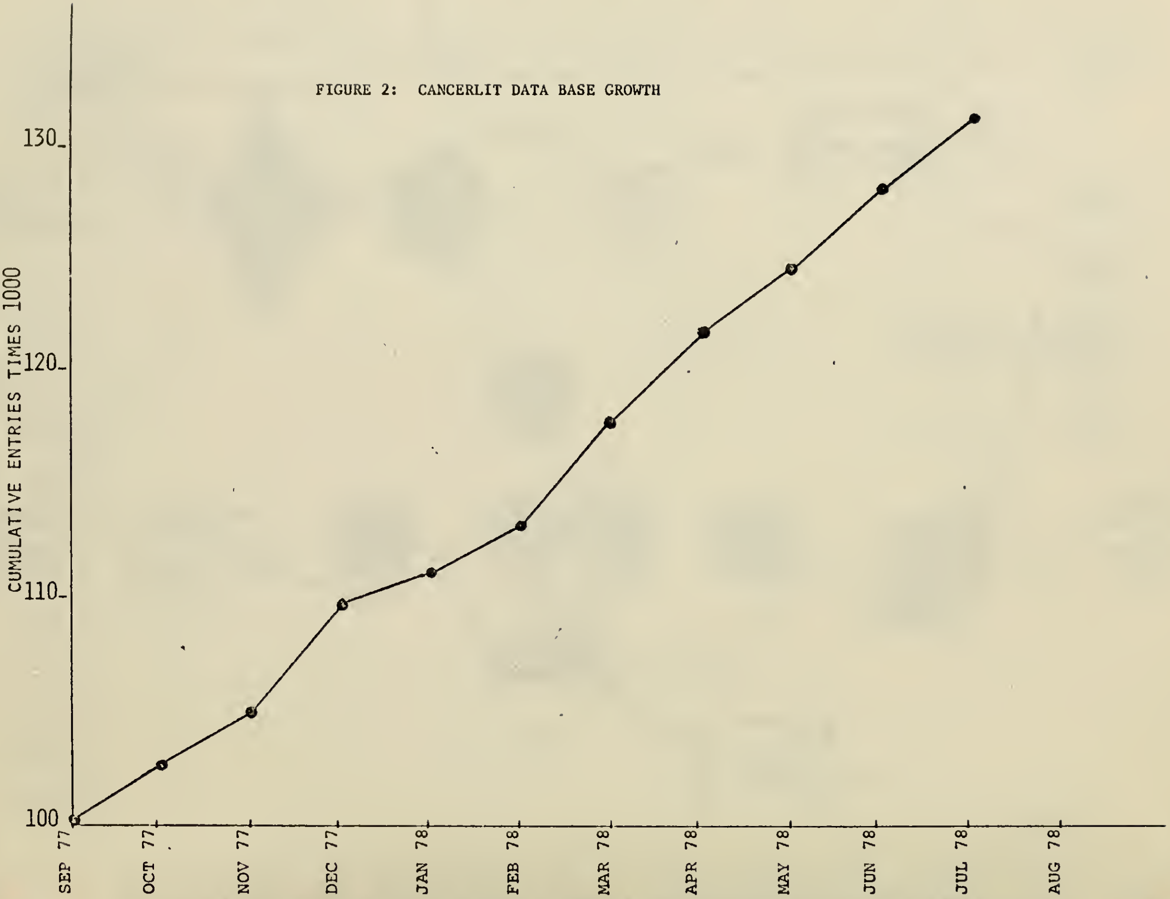


FIGURE 2: CANCERLIT DATA BASE GROWTH



located at more than 700 locations throughout the United States and in 12 foreign countries. Searches can be submitted at any location and the requested information can be viewed at local terminals or printouts can be mailed from the computer center within 24 hours.

Use of the CANCERLINE data bases is shown in Figure 3.

The availability of the CANCERLINE System and its use in developing countries is being promoted through a contract being negotiated with the British Library. This extension of CANCERLINE service will enable scientists in some 100 countries to request free searches of the CANCERLINE data bases and to receive pertinent abstracts as well as a limited number of copies of complete journal articles identified and retrieved by the search.

SPECIAL INFORMATION SERVICES AND RELATED ACTIVITIES:

CANCER INFORMATION DISSEMINATION AND ANALYSIS CENTERS (CIDACs) have been established within the ICRDB Program (Figure 1) for disseminating current information in three broad areas of cancer research. The areas of cancer research within the purview of the three groups are:

1. CIDAC for Diagnosis and Therapy--including cancer detection, diagnosis, treatment, rehabilitation and other clinical aspects of oncology;

2. CIDAC for Carcinogenesis--covering chemical, environmental and physical carcinogenesis, as well as cancer epidemiology (excluding carcinogenesis); and

3. CIDAC for Cancer Biology--dealing with biochemistry, cytology, genetics, immunology, virology and other related disciplines.

Each CIDAC is staffed by staff scientists and their consultants, both groups having thorough and detailed understanding of the subject areas covered by the particular CIDAC. As such, the CIDACs provide the scientific input required for preparation of the CANCERGRAMs and ONCOLOGY OVERVIEWS, (CG's and OO's, Figure 1.)

CANCERGRAMs--a monthly current awareness service--provide cancer researchers and clinicians with abstracts of recently published results related directly to their current research projects, selected from the sources identified for CANCERLIT.

There will be more than 60 different CANCERGRAMs each covering a specific area or topic of cancer research. A list of these topics is given in Table 1. Each monthly issue of a CANCERGRAM on a specific topic usually contains 30-100 abstracts, depending upon the amount of published research activity in that CANCERGRAM area at the time of preparation. Figures 4-6 exemplify a typical CANCERGRAM prepared by each CIDAC.

CANCERGRAMs have been enthusiastically received by cancer researchers. Exemplary comments received in hundreds of complimentary letters over the past year are:

> "I find the CANCERGRAM to be one of the most valuable additions to my literature survey that could possibly be effective.... Please include me in all of your future mailings for I think your service is probably one of the most worthwhile information sources that has ever come out of the National Cancer Institute." University of Colorado Medical Center.

> "Thank you very much, indeed, for the CANCERGRAMs. They have been of immense value for my teaching and practice. Since September 1976, we are giving a Continuous Course of Cancerology Applied to Gynecology for Doctors. The quality and clearness of your abstracts have been the best source of updated material needed for our teaching." Fundagoa Faculdade Catolica de Medicina, Porto Alegre, Brazil.

> "This is just to inform you that your CANCERGRAM, especially that entitled, "Tumor Associated Antigens" is of inestimable value to anyone whom I have met working in this field. I had to lecture in Europe recently, and the Europeans are eagerly trying to get copies of them. Keep up your excellent work!" Northwestern University.

> "CANCERGRAMS are the most useful information service I know of you." Study Group for Bronch. Carc., Vosselaar, Belgium.

> "This is an outstanding service, a very thorough scouting of literature available from published papers and meetings. I use my section of "Childhood Solid Tumors and Lymphomas" as a primary index to the relevant literature I need on Wilms' Tumor." University of Southern California, School of Dentistry.

> "The CANCERGRAM is an extremely valuable resource for my research and teaching program. I find the abstractions excellent, and the literature review is comprehensive and as current as one can expect." University of Missouri, School of Veterinary.

> "It helps me to know what is going on elsewhere, and would help in avoiding repetition or duplication of any project or trial that I may have in mind. Many thanks." Royal Adelaide Hospital, Adelaide, Australia.

> "I find the CANCERGRAMs of great value especially the information that is abstracted from journals I don't receive. I file all the CANCERGRAMs and use them as a reference source for Hematology Fellows and Residents." U.S. Veterans Administration Hospital, New York, New York.

"Since it is a practical impossibility for the individual to search all the available literature, the CANCERGRAM is invaluable. The selection of article is surprisingly good--your consultants are to be congratulated. Please keep it coming." University of Texas Cancer Center.

"The CANCERGRAM is extremely useful and valuable. It provides a superior service in bringing to the attention of its readers the recent publications on the broad aspects of cancer in a wide variety of journals. It disseminates information in an ideal manner, since virtually no one can scan and read all journals on a monthly basis that are reviewed by the CANCERGRAM, and especially since most are prone to read only that which is within his/her contracted areas of specific interest. I urge it to be continued and distributed broadly." Northwestern Memorial Hospital, Chicago, Illinois.

"We very much appreciate receiving CANCERGRAMs. All issues are regularly circulated among all members of our staff and represent a valuable tool in comparing our treatment programs with others." University Hospital, Geneva, Switzerland.

"I received my first CANCERGRAM and want to let you know I think it is an excellent periodical. I've ordered a subscription, so you see I mean what I say!" Harvard Medical School, Massachusetts General Hospital.

"I have received the CANCERGRAM on Neoplasia of the Head and Neck for some time now and have found it very helpful. As a plastic surgeon concerned with both surgical excision and reconstruction of defects, I have found it a ready reference for useful tips and new ideas as well as statistical data." The University of Mississippi Medical Center.

Another service of the CIDACs are the ONCOLOGY OVERVIEWs containing selected abstracts of published literature on high-interest cancer research topics such as a specific anticancer agent or a specific carcinogenic agent. About thirty ONCOLOGY OVERVIEWs will be published each year.

TABLE 1: LIST OF CANCERGRAMS

CANCER DIAGNOSIS AND THERAPY TOPICS:

Acute and Chronic Leukemia--Diagnosis, Treatment
Breast Cancer--Diagnosis, Treatment, Preclinical Biology
Cancer Detection and Management--Biological Markers
Cancer Detection and Management--Diagnostic Radiology
Cancer Detection and Management--Nuclear Medicine
Clinical Cancer Immunology and Immunotherapy
Clinical Evaluation and Treatment of Myeloma and Other Gammopathies
Clinical Treatment of Cancer--Radiation Therapy
CNS Malignancies--Diagnosis, Treatment
Colorectal Cancers--Diagnosis, Treatment
Endocrine Tumors--Diagnosis, Treatment, Pathophysiology
Genitourinary Cancer--Diagnosis, Treatment
Gynecologic Tumors--Diagnosis, Treatment
Lung Cancer--Diagnosis, Treatment
Lymphomas--Diagnosis, Treatment
Melanoma and Other Skin Cancer--Diagnosis, Treatment
Neoplasia of the Head and Neck--Diagnosis, Treatment
Pediatric Oncology
Rehabilitation and Supportive Care
Sarcomas and Related Tumors--Diagnosis, Treatment
Upper Gastrointestinal Tumors--Diagnosis, Treatment

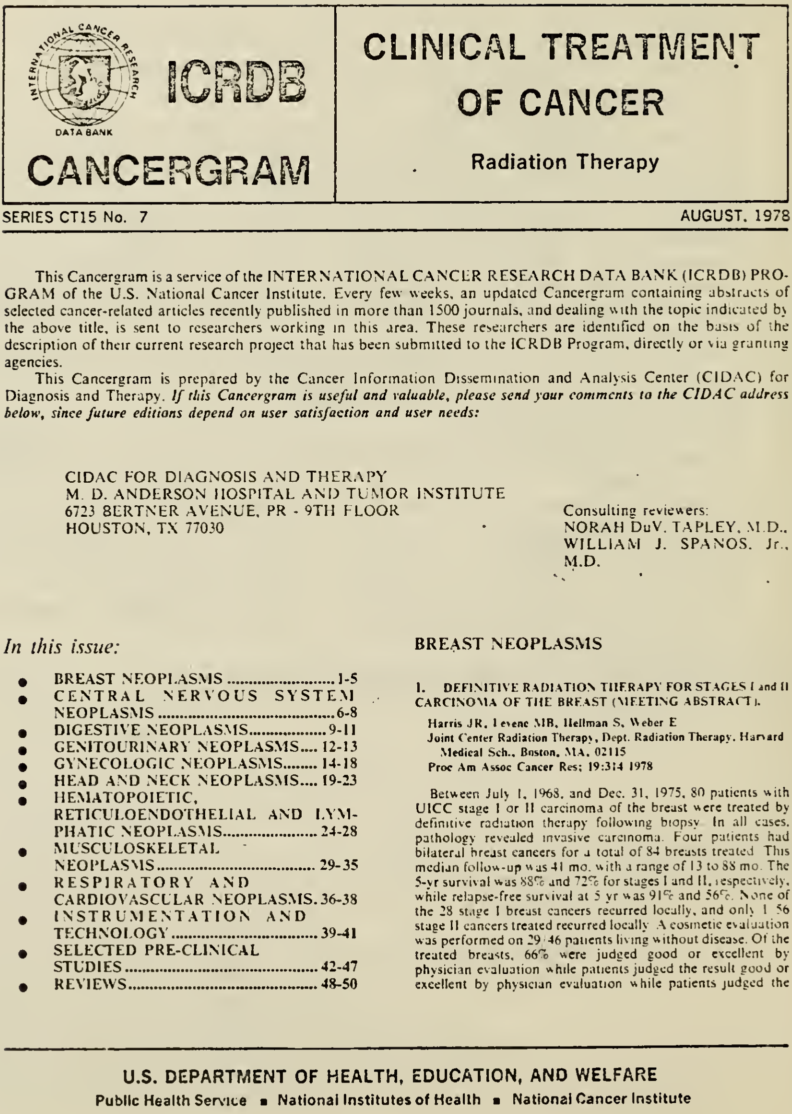
CARCINOGENESIS TOPICS

Chemical Carcinogenesis--Azo Dyes, Aryl Amines, and Related Compounds
Chemical Carcinogenesis--Nitroso Compounds
Chemical Carcinogenesis--Polycyclic Aromatic Hydrocarbons, and Related Compounds
Chemical Carcinogenesis--Miscellaneous Agents
Dietary Aspects of Carcinogenesis
Environmental and Occupational Carcinogenesis
Hormonal Carcinogenesis
Mechanisms of Carcinogenesis--Activation and Metabolism of Carcinogens
Mechanisms of Carcinogenesis--Macromolecular Alterations and Repair
Mechanisms of Carcinogenesis--Oncogenic Transformation
Modification of Carcinogenesis
Organ Site Carcinogenesis--Gastrointestinal Tract
Organ Site Carcinogenesis--Kidney and Urinary Tract
Organ Site Carcinogenesis--Liver
Organ Site Carcinogenesis--Mammary Gland
Organ Site Carcinogenesis--Reproductive System
Organ Site Carcinogenesis--Respiratory Tract
Radiation Carcinogenesis

CANCER BIOLOGY TOPICS

- Antitumor and Antiviral Agents--Experimental Therapeutics, Toxicology, Pharmacology
- Antitumor and Antiviral Agents--Mechanism of Action
- Cell Biology--Cell Kinetics
- Cell Biology--Cytogenetics
- Cell Biology--Growth Regulation, Differentiation
- Cytology--Techniques, Applications
- DNA Tumor Viruses in Nonprimate Systems
- Hormones in Cancer-Related Biology--Nonsteroid Hormones
- Hormones in Cancer-Related Biology--Steroid Hormones
- Immunobiology and Cancer--Antibodies and Humoral Immunity
- Immunobiology and Cancer--Functional Aspects of Cellular Immunity
- Immunobiology and Cancer--Identification and Characterization of Immune Cells
- Immunobiology and Cancer--The Major Histocompatibility Complex
- Immunobiology and Cancer--Tumor-Associated Antigens
- Molecular Biology--Cyclic Nucleotides
- Molecular Biology--DNA
- Molecular Biology--Lipids, Carbohydrates, Bioenergetics, Vitamins and Minerals
- Molecular Biology--Proteins, Polypeptides, Amino Acids
- Molecular Biology--RNA
- Oncofetal Proteins
- RNA Viruses Associated with Cancer--Cell Biology and Animal Studies
- RNA Viruses Associated with Cancer--Molecular Biology
- Structural and Functional Aspects of Cell Membranes
- Viral Immunology
- Virus Studies in Humans and Other Primates

FIGURE 4



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ICRDB

DATA BANK

CANCERGRAM

CLINICAL TREATMENT OF CANCER

Radiation Therapy

SERIES CT15 No. 7

AUGUST, 1978

This Cancergram is a service of the INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB) PROGRAM of the U.S. National Cancer Institute. Every few weeks, an updated Cancergram containing abstracts of selected cancer-related articles recently published in more than 1500 journals, and dealing with the topic indicated by the above title, is sent to researchers working in this area. These researchers are identified on the basis of the description of their current research project that has been submitted to the ICRDB Program, directly or via granting agencies.

This Cancergram is prepared by the Cancer Information Dissemination and Analysis Center (CIDAC) for Diagnosis and Therapy. ***If this Cancergram is useful and valuable, please send your comments to the CIDAC address below, since future editions depend on user satisfaction and user needs:***

CIDAC FOR DIAGNOSIS AND THERAPY
M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE
6723 BERTNER AVENUE, PR - 9TH FLOOR
HOUSTON, TX 77030

Consulting reviewers:
NORAH DuV. TAPLEY, M.D.,
WILLIAM J. SPANOS, Jr., M.D.

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- CENTRAL NERVOUS SYSTEM NEOPLASMS 6-8
- DIGESTIVE NEOPLASMS 9-11
- GENITOURINARY NEOPLASMS 12-13
- GYNECOLOGIC NEOPLASMS 14-18
- HEAD AND NECK NEOPLASMS 19-23
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BREAST NEOPLASMS

1. DEFINITIVE RADIATION THERAPY FOR STAGES I and II CARCINOMA OF THE BREAST (MEETING ABSTRACT).

Harris JR, Levene MB, Hellman S, Weber E
Joint Center Radiation Therapy, Dept. Radiation Therapy, Harvard Medical Sch., Boston, MA, 02115
Proc Am Assoc Cancer Res; 19:314 1978

Between July 1, 1968, and Dec. 31, 1975, 80 patients with UICC stage I or II carcinoma of the breast were treated by definitive radiation therapy following biopsy. In all cases, pathology revealed invasive carcinoma. Four patients had bilateral breast cancers for a total of 84 breasts treated. This median follow-up was 41 mo. with a range of 13 to 88 mo. The 5-yr survival was 88% and 72% for stages I and II, respectively, while relapse-free survival at 5 yr was 91% and 56%. None of the 28 stage I breast cancers recurred locally, and only 1/56 stage II cancers treated recurred locally. A cosmetic evaluation was performed on 29/46 patients living without disease. Of the treated breasts, 66% were judged good or excellent by physician evaluation while patients judged the result good or excellent by physician evaluation while patients judged the

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service ■ National Institutes of Health ■ National Cancer Institute

NCI/ICRDB/CK14 78/02

FIGURE 5

NTISUB/D 365-002

INTERNATIONAL CANCER RESEARCH DATA BANK
ICRDB
CANCERGRAM

MECHANISMS OF CARCINOGENESIS

Oncogenic Transformation

SERIES CK14 No. 2

AUGUST, 1978

This Cancergram is a service of the INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB) PROGRAM of the U.S. National Cancer Institute. Every few weeks, an updated Cancergram containing abstracts of selected cancer-related articles recently published in more than 1500 journals, and dealing with the topic indicated by the above title, is sent to researchers working in this area. These researchers are identified on the basis of the description of their current research project that has been submitted to the ICRDB Program, directly or via granting agencies.

This Cancergram is prepared by the Cancer Information Dissemination and Analysis Center (CIDAC) for Carcinogenesis Information. ***If this Cancergram is useful and valuable, please send your comments to the CIDAC address below, since future editions depend on user satisfaction and user needs:***

CIDAC FOR CARCINOGENESIS INFORMATION
SCIENCE INFORMATION SERVICES
FRANKLIN INSTITUTE RESEARCH LABORATORIES
20TH AND RACE STREETS
PHILADELPHIA, PA 19103

ATTENTION READER

As of this issue, this and other CANCERGRAMS in the field of Carcinogenesis (CK series) are being prepared by a new CIDAC, at the above address.

In this issue:

- INDUCTION OF ONCOGENIC TRANSFORMATION 1-15
- ENHANCEMENT OR PREVENTION OF ONCOGENIC TRANSFORMATION 16-23
- CELL PROLIFERATION, CELL CYCLE AND PHENOTYPIC EFFECTS OF ONCOGENIC TRANSFORMATION 24-30
- MORPHOLOGIC AND CELL SURFACE STUDIES IN TRANSFORMED CELLS 31-42
- BIOCHEMICAL AND MOLECULAR BIOLOGY STUDIES IN TRANSFORMED CELLS 43-58
- REVIEWS AND OTHER STUDIES ON ONCOGENIC TRANSFORMATION 59-64

INDUCTION OF ONCOGENIC TRANSFORMATION

1. NEOPLASTIC TRANSFORMATION OF HUMAN DIPLOID FIBROBLAST CELLS BY CHEMICAL CARCINOGENS.

Kakunaga T
Chemistry Branch, NCI, Bethesda, MD, 20014
Proc Natl Acad Sci USA; 75(3):1334-1338 1978

The ability of 4-nitroquinoline 1-oxide (4NQO) to transform KD fibroblasts derived from a cutaneous punch biopsy of a normal human adult was investigated. Alterations of the cell growth pattern such as higher density and piling up of cells were noticed in some fractions of cultures that were successively subcultured after 4NQO treatment (0.1 ug ml). Morphologically altered cells retained this growth pattern and became established lines of transformed cells without showing the limited life-span characteristic of normal cells in culture. The transformed cells showed a higher saturation density and the ability to grow in soft agar. It is doubtful that selection of preexisting transformed human cells was the mechanism of transformation, because clones of these normal cells could also be used to assess the transforming effect of 4NQO. Preliminary studies suggested that numerous cell divisions were required for the development of transformation. Female nude mice were inoculated sc with 0.2 or 2.0 x 10^6 transformed cells, and solid tumors appeared at the injection site after an av latent period of 6 wk. Treatment of cells with 0.1 ug/ml N-methyl-N'-nitro-N-nitrosoguanidine induced transformation

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Public Health Service ▪ National Institutes of Health ▪ National Cancer Institute

NCI/ICRDB/CB19 78/03

FIGURE 6

NTISUB/D/322-003

INTERNATIONAL CANCER RESEARCH
DATA BANK

ICRDB CANCERGRAM

ANTITUMOR AND ANTIVIRAL AGENTS

Mechanisms of Action

SERIES CB19 No. 3

JULY, 1978

This Cancergram is a service of the INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB) PROGRAM of the U.S. National Cancer Institute. Every few weeks, an updated Cancergram containing abstracts of selected cancer-related articles recently published in more than 1500 journals, and dealing with the topic indicated by the above title, is sent to researchers working in this area. These researchers are identified on the basis of the description of their current research project that has been submitted to the ICRDB Program, directly or via granting agencies.

This Cancergram is prepared by the Cancer Information Dissemination and Analysis Center (CIDAC) for Virology, Immunology, and Biology. *If this Cancergram is useful and valuable, please send your comments to the CIDAC address below, since future editions depend on user satisfaction and user needs:*

CIDAC FOR VIROLOGY, IMMUNOLOGY, AND BIOLOGY
SCIENCE INFORMATION SERVICES
FRANKLIN INSTITUTE RESEARCH LABORATORIES
20TH AND RACE STREETS
PHILADELPHIA, PA 19103

In this issue:

- EFFECTS OF ANTITUMOR AGENTS ON CELL CYCLE, NUCLEIC ACIDS AND CHROMOSOMES 1-12
- OTHER CELLULAR AND SUBCELLULAR EFFECTS OF ANTITUMOR AGENTS 13-18
- FACTORS INFLUENCING SENSITIVITY TO ANTITUMOR AGENTS 19-23
- TRANSPORT, BINDING, CONVERSION AND METABOLISM OF ANTITUMOR AGENTS 24-27
- STRUCTURE-ACTIVITY STUDIES OF ANTITUMOR AGENTS 28-33
- EFFECTS OF ANTIMETASTATIC AGENTS 34-35
- SYNTHESIS, ISOLATION, CHARACTERIZATION AND ANALYSIS OF ANTITUMOR AGENTS 36-40
- CELLULAR AND MOLECULAR STUDIES OF ANTIVIRAL AGENTS 41-45
- OTHER RELATED STUDIES 46-47

EFFECTS OF ANTITUMOR AGENTS ON CELL CYCLE, NUCLEIC ACIDS AND CHROMOSOMES

1. COMPARATIVE INHIBITORY EFFECTS OF ADRIAMYCIN, AD 32, AND RELATED COMPOUNDS ON IN VITRO CELL GROWTH AND MACROMOLECULAR SYNTHESIS (MEETING ABSTRACT).

Lazarus H, Yuan G, Tan E, Israel M
Sidney Farber Cancer Inst., Harvard Medical Sch., Boston, MA, 02115
Proc Am Assoc Cancer Res; 19:159 1978

In contrast to Adriamycin (ADR), AD 32 (N-trifluoroacetyladriamycin-14-valerate) binds poorly, if at all, to DNA. However, it is therapeutically superior to ADR in rodent tumor systems. AD 32 and its half-substituted congeners N-trifluoroacetyladriamycin (AD 41) and adriamycin-14-valerate (AD 48) were compared with ADR for growth and macromolecule precursor incorporation inhibitory effects in CCRF-CEM (human leukemic lymphoblastic) cell cultures. All four agents are strongly growth inhibitory. Median inhibition dose (ID50) values for cells continuously exposed for 48 hr to ADR, AD 32, AD 41, and AD 48 were 0.05, 0.25, 0.20, and 0.03 microM, respectively, correlating

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Each ONCOLOGY OVERVIEW is a special bibliography with abstracts and is useful for reference to all significant papers published about a specific cancer topic in recent years. The topics covered by ONCOLOGY OVERVIEWS, now in preparation, are listed in Table 2. Figure 7 typifies an ONCOLOGY OVERVIEW prepared by the CIDAC for Diagnosis and Therapy.

The CIDACs have the responsibility for: 1.) optimizing methods for indexing, retrieving, and summarizing scientific information and findings; 2.) identifying and implementing new projects to promote exchange of technical information between cancer researchers on a worldwide basis; 3.) identifying new results that are of special importance and represent significant progress in specific cancer research areas; and 4.) providing custom searches of the cancer literature and responding to other specialized requests for cancer information made by researchers who have no local access to on-line biomedical information services.

The CURRENT CANCER RESEARCH PROJECTS ANALYSIS CENTER (CCRESPAC), is operated for the ICRDB Program by the Smithsonian Science Information Exchange (Figure 1). It is responsible for the collection and processing of more than 20,000 descriptions of ongoing cancer research projects. More than 3,000 of these projects are conducted outside the United States.

Major CCRESPAC services and publications include the preparation of SPECIAL LISTINGS, the CANCERPROJ data base and the CLINPROT data base which were described earlier. In addition, CCRESPAC prepares a comprehensive annual COMPILATION OF CLINICAL PROTOCOL SUMMARIES containing nearly 1,000 protocol summaries from many different countries.

TABLE 2: ONCOLOGY OVERVIEWS PUBLISHED OR IN PREPARATION

CIDAC - Diagnosis and Therapy

Platinum Coordination Complexes as Anticancer Agents
Hyperthermia in the Treatment of Cancer
Clinical Use of Anthracycline Antibiotics in the Treatment of Cancer
Diagnostic and Prognostic Application of Computed Axial Tomography

CIDAC - Carcinogenesis

The Role of Oral Contraceptives and IUDs in Human Cancer
Aflatoxin and Other Mycotoxin Carcinogenesis
The Role of Fats in Carcinogenesis
The Role of Asbestos in Human Cancer
The Role of Personality Factors and Emotional Stress in the Etiology of Human Cancer
Properties and Function of Tumor Promoters and Cocarcinogens
Carcinogenesis Induced by Metals

CIDAC - Cancer Biology

Studies with Virus and Cell Mutants in Tumor
Murine Mammary Tumor Viruses
Receptor and Binding Proteins
Integrated Viral Genomes
Immune Response Genes
Cytoskeletal Structures and Components

NCI/ICRDB/OT-77/01

NTISUB/D/228-01

FIGURE 7

ONCOLOGY OVERVIEW

SELECTED ABSTRACTS

ON

PLATINUM COORDINATION COMPLEXES AS ANTICANCER AGENTS

OCTOBER 14, 1977

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service • National Institutes of Health •
National Cancer Institute

A SERVICE OF THE
INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB)

CCRESPAC performs additional services as: 1.) a reference and referral center for researchers, providing quality control for entries in the CANCERPROJ data base; 2.) the producer of Compilations and listings of research projects for use in the Program Analysis and Management Information Systems; and 3.) a customs search service to retrieve all project descriptions dealing with areas of research requested by cancer researchers.

The SPECIAL LISTINGS produced by CCRESPAC contain descriptions of current ongoing research projects. The descriptions are prepared by cancer researchers in more than 60 different countries of the world. Each SPECIAL LISTING (SL in Figure 1) contains some 130-400 descriptions of projects in a specific area of cancer research. Figure 8 illustrates the description of active research extant in a given cancer problem area.

About sixty SPECIAL LISTINGS, each covering a different major area of cancer research, are prepared each year. A list of these topics is given in Table 3. The "first cycle" indicates the titles of the original series of SPECIAL LISTINGS compiled and produced beginning in early 1976. As noted in the "second cycle", titles were modified to describe the more specific, "tailored" content of the document.

The NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), Figure 1, through an Interagency Agreement supports the ICRDB Program by producing and distributing the ICRDB publications described in the foregoing. Currently, the NTIS distributes more than 13,000 copies of CANCERGRAMs per month to more than 6,300 unique investigators; SPECIAL LISTINGS have been disseminated to some 8,000 investigators; and over 5,000 copies of other ICRDB publications have been sent to interested recipients. The investigators receiving these ICRDB periodicals are identified on the basis of descriptions of their current research projects which are provided directly to the ICRDB Program or via their granting agencies. In addition, all of these publications have been widely publicized by the NTIS and are maintained as saleable items.

The ICRDB Program is dedicated to making its services and publications known, so that they will be used to the greatest benefit by the scientific community. Two types of promotional activities, undertaken during Fiscal Year 1978, were formal technical exhibits and mass mailing efforts.

Exhibits, staffed by ICRDB personnel, are displayed at domestic and international meetings so that direct interaction with attendees is achieved. Such interaction helps the program personnel to gain perspective and to implement change according to user needs. The meetings at which the ICRDB Program has been exhibited during the period of this report include: the American Association of Cancer Researchers (AACR), Washington, D.C., April 3-5; the American Society of Clinical Oncologists (ASCO), Washington, D.C., April 5-7; and The Medical Library Association (MLA), Chicago, Illinois, June 12-15. An exhibit is scheduled for the XII International Cancer Congress, Buenos Aires, Argentina, October 5-11. During these exhibitions, there are "live" demonstrations of the capabilities of CANCERLINE. ICRDB information and publications are distributed extensively.

NCI/ICRDB/SL-77/126

NTISUB/D/294-008

FIGURE 8

SPECIAL LISTING

CURRENT CANCER RESEARCH

on

CANCERS OF THE URINARY TRACT

JULY 21, 1978

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service • National Institutes of Health •
National Cancer Institute

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INTERNATIONAL CANCER RESEARCH DATA BANK (ICRDB)

TABLE 3: SPECIAL LISTING TOPICS

FIRST CYCLE

Special Listing Title, or Subject Area	Publication Date or Status
Occupational Carcinogenesis and Related Studies	(4/9/76)
Breast and Gynecological Cancer Diagnostic Methods and Screening Programs	(5/10/76)
Screening, Detection and Diagnosis of Specific Human Cancers (other than mammary and gynecological cancer) and Related Cancer Control Projects	(5/15/76)
Mechanism of Action of Anticancer Agents	(5/1/76)
Carcinogenesis and Related Biology of the Bladder, Kidney, Prostate, Testis	(7/8/76)
Endogenous Factors and Mechanisms Controlling Growth and Differentiation of Normal and Malignant Cells	(9/3/76)
Preclinical Studies of Pharmacokinetics and Effectiveness of Anticancer Drugs	(9/20/76)
Role of Hormones in Carcinogenesis and Related Studies of Hormone Receptors	(9/7/76)
Cancer-Related Antigens	(10/1/76)
Selected Aspects of Cancer Related Nucleic Acid Biochemistry	(11/15/76)
Clinical Immunotherapy of Cancer	(1/10/77)
Selected Aspects of Enzymes in Cancer	(2/16/77)
Antiviral Agents and Procedures	(2/28/77)
Tumor Immunogenetics and Cancer-Related Transplantation Biology	(3/29/77)
Humoral and Cellular Immunity to Tumors	(4/13/77)
Clinical, Preclinical and Epidemiological Studies of Cancer of the Urinary Tract, Adrenal and Male Reproductive System	(4/20/77)
Clinical and Preclinical Studies of Central Nervous System and Related Tumors, and Tumors of the Pituitary	(4/21/77)
Non-Immunological Host-Tumor Interactions	(4/22/77)
Biochemistry and Physical Chemistry of Proteins, Amino Acids and Polyamines Related to Cancer Biology	(8/5/77)
Clinical Radiotherapy of Cancer, and Related Preclinical Studies	(7/15/77)
Radiologic Diagnosis of Cancer and Related Techniques	(7/1/77)
Etiology, Biochemistry and Immunology of Tumors of the Nervous System	(7/15/77)
Virus-Related Antigens Associated with Cancer	(7/8/77)
Clinical Aspects of Oral, Head and Neck, and Thyroid Cancers (Including Epidemiology, and Training Programs for Dental Professionals)	(11/4/77)
Clinical and Preclinical Aspects of Bone Tumors and Other Sarcomas	(8/12/77)
Environmental and Occupational Factors in Human Cancer, and Related Studies on Major Inorganic Carcinogens	(11/4/77)
Selected Aspects of Cancer Related Biochemistry; Membrane Transport/Characterization; Intermediary Metabolism/Energy Relations; Lipid/Carbohydrate Biochemistry; Vitamins	(9/2/77)

Selected Factors Associated with Increased Risk/Incidence of Human Cancer	(8/12/77)
Development and Application of Tumor Cell Culture Systems and Related In Vitro Techniques	(11/11/77)
Organic Chemicals in Occupational and Experimental Carcinogenesis (excluding most Polycyclic Hydrocarbons and Nitroso Compounds)	(11/25/77)
Modification of Carcinogenesis in Model Systems	(8/5/77)
Preclinical Aspects of Cancer Immunotherapy	(8/26/77)
Biochemical, Immunological and Morphological Methods for Diagnosis of Cancer	(9/2/77)

SECOND CYCLE

Effects of Chemical Carcinogens on Nucleic Acids, Proteins and Chromosomes	(11/11/77)
Melanomas and Other Skin Cancers	(1/13/78)
The Relationship of Viruses to Human Cancer	(1/27/78)
Isolation, Synthesis, and Screening of Anticancer Agents	(1/20/78)
Biology of Myeloma Proteins, Other Paraproteins Myelomas, and Other Monoclonal Gammopathies	(2/3/78)
Avian Tumor Viruses	(2/17/78)
Breast Cancer: Etiology, Endocrinology and Related Biology	(2/24/78)
Differentiation and Maturation of Normal and Neoplastic Hematopoietic Cells	(3/24/78)
Murine Tumor Viruses	(3/17/78)
Etiology, Epidemiology and Related Biology of Gastrointestinal, Oral, Esophageal and Pancreatic Cancers	(3/10/78)
Clinical Diagnosis, Prognosis and Treatment of Cancers of the Digestive Tract	(3/17/78)
Breast Cancer: Diagnosis, Prognosis and Treatment	(4/14/78)
Carcinogenic Substances in Food and Drugs and Related Epidemiology	(3/31/78)
Nitroso Compounds	(4/7/78)
Etiology, Biochemistry, and Pathology of Hepatic Neoplasms	(3/31/78)
Pathogenesis and Biology of Cancer of the Lower Respiratory Tract	(4/21/78)
Polycyclic Aromatic Hydrocarbons	(4/28/78)
Diagnosis and Treatment of Lung Cancer	(5/5/78)
Radiation Carcinogenesis and Related Radiobiology	(5/5/78)
Molecular Biology of DNA Tumor Viruses	(5/19/78)
The Epidemiology, Etiology and Pathophysiology of Endocrine System Neoplasms and Related Endocrinology (Excluding Gonads)	(6/9/78)
Gynecologic Cancer: Etiology, Epidemiology, Clinical Aspects and Related Studies	(6/16/78)
Clinical Aspects of Leukemias, Lymphomas and Other Lymphoproliferative Disorders	(7/28/78)
Patient Care, Rehabilitation, and Psychosocial Aspects of Cancer Treatment (Including Training Programs for Allied Health Personnel)	(8/4/78)

Promotional mailings are mass mailings to pre-selected audiences. Tasks undertaken in this category include: a mailing by NTIS, on our behalf, to approximately 12,000 scientists, in the form of a brochure/order form combination for CANCERGRAMs. Another mailing was to approximately 150 NCI researchers who were not already receiving CANCERGRAMs. A third effort is underway. It will be a mailing directed toward principal investigators in the CANCERPROJ file, who currently do not receive CANCERGRAMs. Systems are in planning to increase awareness and use of ICRDB publications and services among Cancer Centers and libraries.

Certainly, the current success that has been achieved in meeting the Congressionally mandated mission of the ICRDB Program could not have been achieved without the excellent integration of a concerted domestic effort and the collaboration of INTERNATIONAL ORGANIZATIONS, Figure 1.

A CLEARINGHOUSE FOR ON-GOING RESEARCH IN CANCER EPIDEMIOLOGY is a cooperative project that is supported jointly by the ICRDB Program, the INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) in Lyon, France, and the German Cancer Research Center in Heidelberg, Germany. The Clearinghouse, located in Lyon collects, processes, and disseminates detailed data on research related to cancer epidemiology and studies of human cancer causation in countries around the world. The Clearinghouse also prepares lists of epidemiology researchers and resources, responds to technical questions and produces a Directory of On-going Research In Cancer Epidemiology.

The WORLD HEALTH ORGANIZATION (WHO), with the support of the ICRDB Program, has developed a series of publications on THE INTERNATIONAL HISTOLOGIC CLASSIFICATION OF TUMORS (IHCT). The IHCT series resulted from an agreement among international experts on the identification of tumors and are designed to facilitate the worldwide adoption of a uniform and standard nomenclature for cancer. WHO has established 23 reference centers throughout the world for different tumor sites. These reference centers are available for consultation and exchange of histologic slides among pathologists.

With the cooperation and support of the ICRDB Program, the WHO has developed an international coded nomenclature for neoplasms--INTERNATIONAL CLASSIFICATION OF DISEASES FOR ONCOLOGY, ICD-O. ICD-O provides a detailed code for the anotomic sites of neoplasms and their histopathology. It is designed to be used in tumor registries, cancer data banks, pathology laboratories and departments of vital statistics so that data on cancer from different countries can be uniformally coded, reported and analyzed. ICD-O has been published in English, Spanish, and Portugese; Russian, French and German language versions are in preparation. The ICD-O will be utilized by the Surveillance Epidemiology End Results Reporting Program (SEER), and by the Centralized Cancer Patient Data System (CCDPS) in the United States; and by the International Cancer Patient Data Exchange System (ICPDES).

In collaboration with the PAN AMERICAN HEALTH ORGANIZATION (PAHO), the ICRDB Program has established the LATIN AMERICAN CANCER RESEARCH INFORMATION PROJECT (LACRIP). PAHO and its regional Library of Medicine (BIREME) in Sao

Paulo have developed and implemented mechanisms for identifying, collecting and supplying Latin American biomedical literature and summaries of ongoing cancer-related research projects in Latin America for input to the CANCERLINE data base. To date, over 300 investigators in Latin America have been identified and are submitting annual updates of their research projects. As such, many of these investigators now receive various ICRDB publications on a regular basis.

PAHO serves also as the center for searching the ICRDB data bases in order to provide data and documents in response to requests for information from cancer researchers in Latin America.

Beginning in September 1978, PAHO assumed the additional role of acting as the coordinator for a series of clinical trials to be conducted at eight cancer centers in Latin America. Each Latin American center has been linked with a cancer center in the United States, thus assuring that new technology and clinical skills developed in the United States will be disseminated rapidly among the cooperating Latin American centers. The ICRDB Program will benefit by being able to collect patient data in conjunction with the NCI's division of Cancer Treatment. In addition, direct access to these Latin American centers will improve the dissemination of ICRDB publications and will encourage additional cooperative efforts throughout Latin America.

In cooperation with the INTERNATIONAL UNION AGAINST CANCER (UICC) in Geneva, support is provided for a special Committee for International Collaborative Activities (CICA), within the framework of the UICC. The Executive Secretary and members of CICA are providing advisory, consultative and liaison services to support the international activities of the United States National Cancer Program, in general, and the ICRDB Program, in particular.

CICA aids in the collection of data about ongoing cancer research projects (including clinical protocols) from countries around the world. CICA personnal also identify and promote collaborative projects among cancer centers and cancer scientists in different countries. An International Directory of Specialized Cancer Research and Treatment Establishments has been published containing descriptions of more than 500 cancer centers around the world. An updated edition is to be published in the Fall of 1978.

The INTERNATIONAL MEDICAL INFORMATION CENTER (IMIC) a partially ICRDB-supported center in Japan, coordinates the screening and collection of cancer-related information published or presented at conferences in Japan and other Asian countries for entry into the CANCERLINE data bases.

The publication of an annual Compendium of Tumor Immunotherapy Protocols is supported by the ICRDB Program. The protocols are provided by participants in the International Registry of Tumor Immunotherapy. The Registry was established in 1973 for the purpose of cataloging protocols used for immunotherapy while the trials are actually in process so that a compendium could be prepared and provided to cooperating investigators. The compendium encompasses over 400 tumor immunotherapy projects in over 20 countries throughout the world.

The ICRDB Program is supporting the duplication and distribution of veterinary pathology slides and related explanatory materials to veterinary schools and other cancer research groups all over the world. This INTERNATIONAL HISTOLOGIC CLASSIFICATION OF TUMORS OF DOMESTIC ANIMALS was prepared by the WHO International Reference Center for Comparative Oncology located at the Armed Forces Institute of Pathology in Washington, D.C.

Of significance, is the recent collaborative effort of the ICRDB Program and the UICC/CICA leading to the successful coordination of the INTERNATIONAL CANCER PATIENT DATA EXCHANGE SYSTEM (ICPDES) on a pilot-project scale. Currently, there are many cancer centers throughout the world that collect comprehensive data on a proportion of cancer patients. However, it is not always readily retrievable nor collected in a standardized way to enable comparisons to be made with data collected in other centers, especially in other countries. It is often difficult, for instance, to compare end results of cancer therapy in different countries because of the different methods used to stage patients, the varying proportions of unstaged patients, and the varying degrees of follow-up and assessment of cause of death. From the point of view of international and even national studies of cancer patients, there is an urgent need to encourage the collection, retrieval and dissemination of standardized comprehensive information within hospitals and cancer centers. Using such a system, in a centralized data base, will provide a means for developing important international projects. Using the most modern resources of data processing it would be possible to carry out prospective and retrospective scientific, statistically valid studies not readily possible at present.

Seven European cancer centers and four in the United States are participating in a project for the exchange of patient data. Two data centers, one in Europe and one in the United States, will store and analyze these data. The data currently concerns four designated cancers: breast, colon and rectal, Hodgkin's Disease, and larynx. As of 1 June 1978, the total numbers of eligible cases received per center are as follows:

CENTER	# OF CASES	# OF CASES YET TO BE ENTERED	TOTAL
Brussels	110		110
Rotterdam	97	161	258
Milan	228		228
Budapest	134	212	346
Moscow	131	181	312
Bordeaux	13	146	158
M.D. Anderson	362		362
			1775

An encouraging sign, is the cooperation of the Soviet Union as an active participant in this cancer data/information system. Up to this point, the Soviets have been reluctant to join the collaborative network of communication established between the ICRDB Program and other international institutions.

Proposals for the expansion of the project fall into six major categories: 1.) natural course of disease; 2.) multiple primary tumors; 3.) evaluation of therapy; 4.) collection of data on rare tumors; 5.) epidemiology; and 6.) evaluation of classifications and staging.

The CICA System could result in the first internationally recognized and standardized tumor registry providing information on: 1.) cancer patient follow-up; 2.) survival data; 3.) demographic data; 4.) comparisons and evaluations; and 5.) eventual influence on treatment policy.

The foregoing illustrate the magnitude of the ICRDB Program and the systematic and comprehensive implementation of the broad spectrum of operations, Figure 1, required for the integration of the variety of scientific information systems and services for the community of international scientists.

Interagency agreements entered into by the ICRDB Program follow.

Interagency Agreement: National Library of Medicine (NLM)

Title: Establish and Operate an On-Line Cancer Information System CANCERLINE

Contractor's Project Director: Dr. Henry M. Kissman

Project Director: Ms. Donna Wicker

Objective:

The objective of this agreement is for the placement of cancer-related information (abstracts, project descriptions, clinical protocol summaries) into data bases generated, maintained, and operated on the NLM's computer systems, and for the dissemination of the data so placed to institutions via the NLM telecommunications network or via direct mailing of necessary tapes.

Major Accomplishments:

A data base called CANCERLINE has been created from data supplied by the ICRDB Program. This data base currently contains more than 130,000 abstracts describing the results of research in all fields of cancer.

CANCERLINE han been periodically updated and arrangements have been made to enter approximately 3,000 new abstracts to the data base each month.

The entire CANCERLINE Data Base is regenerated at least once each year so that errors and inconsistencies in the content and format of the data are corrected.

A data base called CANCERPROJ has been created from data supplied by the ICRDB Program. This data base currently contains more than 20,000 descriptions of current cancer research projects. This data base is completely regenerated using new data from the ICRDB Program four times each year.

An experimental data base called CLINPROT has been created from data supplied by the ICRDB Program. This data base currently contains approximately 1000 descriptions of clinical protocols in a special format describing the type of cancer being treated, the agents used, and outlining the protocol.

Users of the NLM system are given instruction on the use of ICRDB data bases as part of the standard user training courses given by NLM.

NLM, in cooperation with the ICRDB Program, prepares user manuals and periodic technical bulletins for users describing the ICRDB data bases.

NLM provides NCI with basic statistics regarding the use of ICRDB data bases.

NLM provides a work station and back up services for an NCI staff person who is assigned to the NLM.

NLM provides NCI staff and NCI contractors with a number of free access codes which permit them to search ICRDB data bases without the usual search charges.

Significance to the National Cancer Program:

In consonance with the National Cancer Act of 1971, this interagency agreement has give the ICRDB Program the cost savings benefit of using an existing organization with capabilities to reformat, process, and make the results of cancer research available to more than 500 locations throughout the world via an existing telecommunications network resident at NLM. These locations include medical schools, medical research institutions, regional medical libraries and hospitals throughout the United States, and several countries outside the U.S.

Proposed Course: Plans call for the continuation of this agreement through September 30, 1979.

Date Agreement Initiated: July 1, 1974

Current Agreement Level: $380,000

Interagency Agreement: Smithsonian Institution (SI)

Title: Establish and Operate a Current Cancer Research Project Analysis Center (CCRESPAC)

Contractor's Project Director: Donald Elliott, M.D., Ph.D.

Project Officer: Richard H. Amacher

Objective:

The overall objective of this Agreement is the operation of a Current Cancer Research Project Analysis Center (CCRESPAC) to support the International Cancer Research Data Bank (ICRDB) Program by coordinating the collection and processing of research project descriptions specifying who is doing the research, where it is being done and what approach is being used.

Major Accomplishments:

- Prepared a file called CLINPROT containing approximately 1,000 summaries of cancer treatment protocols for on-line retrieval through the MEDLARS computer system of the National Library of Medicine (NLM).

- Prepared the second edition of the Compilation of Clinical Protocol Summaries for the NCI staff and clinicians working under NCI grants or contracts. Over 2,000 copies have been distributed.

- Prepared for publication 50 Special Listings consisting of edited resumes of ongoing research in specific cancer subject areas.

- Prepared a computer file of over 18,000 cancer projects called CANCERPROJ which is now available for on-line searching and retrieval via the NLM MEDLARS computer system.

- Devised a detailed cancer-related thesaurus which was used to index projects in the CANCERPROJ file.

- Continued correspondence and other communications with scientists and clinicians in more than 70 countries. This has resulted in the identification of over 3,600 non-U.S. research projects proviously unknown to the CCRESPAC information system.

Significance to the National Cancer Program:

In consonance with the National Cancer Act of 1971, this Interagency Agreement provides the capabilities for collecting, processing, and disseminating ongoing cancer research project information to researchers anywhere.

This Center produces a variety of information products and services including the dissemination of specialized cancer catalogs and on-line searching of current cancer research project information.

Proposed Course:

Plans call for the continuation of this Agreement through December 30, 1979.

Date Agreement Initiated: December 30, 1974

Current Agreement Level: $498,000

Interagency Agreement: National Technical Information Service (NTIS)

Contractor's Project Director: Mr. James Jennings

Project Officer: Richard H. Amacher

Objective:

This Agreement supports the ICRDB Program by producing and disseminating ICRDB publications, e.g., CANCERGRAMS, Special Listings, Oncology Overviews and other ad hoc publications. In addition to the production and dissemination function, NTIS is also responsible for announcing these documents to potential users and maintaining all ICRDB documents in and archival storage for supplying copies on request.

Major Accomplishments:

Currently NTIS is disseminating more than 13,000 copies of CANCERGRAMS per month to more than 6,300 unique investigators. In addition, about 100 Special Listings (including revised and updated issues) have been prepared and disseminated to over 8,000 investigators; and over 5,000 copies of other ICRDB publications have also been distributed.

All of the above publications (including 53 separate CANCERGRAM titles and about 50 different Special Listings) have been announced and are maintained at NTIS as saleable items. This has resulted in over 300 subscriptions to CANCERGRAMS as well as over 2,000 individual publications sold.

This Program is continuing to grow and is expected to have further utility as the third major publication series, Oncology Overviews, is published. Currently over 15 titles are being prepared for publication.

Significance to the National Cancer Program:

This interagency agreement has allowed the ICRDB Program to rapidly fulfill one of its mandated activities, namely, the broad dissemination of biomedical research information on cancer. Through the various worldwide outlets, NTIS performs a valuable service in disseminating ICRDB products to the scientific community throughout the world.

Proposed Course:

Plans call for the continuation of the Agreement through September 29, 1979.

Date Agreement Initiated: September 30, 1976

Current Agreement Level: $636,449

SCIENTIST-TO-SCIENTIST COMMUNICATION

A program of cancer communication, on a person-to-person basis, was implemented in 1975 when the ICRDB Program accepted the proposal of the UICC to operate two major programs for effective communication between scientists in the international sphere. These programs--the "International Cancer Research Technology Transfer (ICRETT)" and the "International Cancer Research Workshop (ICREW)" Programs are integral to ICRDB but managed as discrete entities of NCI's international activities.

The purpose of ICRETT is to enable two cancer researchers from different countries, working on a common problem, to carry out jointly brief research projects (for an average of three weeks) which will develop, improve, or modify new or specialized techniques or methods, and will clearly contribute toward the progress of cancer research. Scientists can engage in short-term, on-the-spot collaboration necessary for comparing the results of parallel or related research being conducted in different countries. It enabled such scientists to meet for intensive discussions and/or demonstrations, thereby promoting direct and rapid person-to-person transfer of information in areas of basic, clinical or behavioral research. In many instances, these interactions lead to the continuing exchange of research information, which, in turn, leads to a more productive and progressive collaborative effort.

ICREW, on the other hand, is designed to increase the frequency, speed and efficiency of direct information exchange between small groups of cancer investigators, (15 persons, on the average). Although working in different countries, they are actively engaged in the same field of basic, clinical, or behaviorial research related to cancer.

During its second year of operation--December 1976 to December 1977--the ICRETT Program attracted 134 applicants of which 86 were approved, in addition to 40 approved prior to then. During the period, December 1977 and 30 April 1978, 37 additional ICRETT awards were made (Tables 4 and 5). It is anticipated that some 110 awards will be made during FY 1978. Preliminary data show that awardees from the United Kingdom and the United States greatly outnumber those applicants and awardees from other countries. Significantly, however, there has been an increase in the number of applicants/awardees from the developing countries. As in the first year, a majority of the ICRETT scientists visited laboratories in the United States and the United Kingdom with Swedish and French institutions hosting increasing numbers of visitors.

Many of the recipients of the technology transfer awards have continued to collaborate on projects which were initiated during their visits to the host laboratories. As an example, an American pathologist visited a German laboratory and learned to induce experimental pancreatic carcinoma in hamster model systems and to prepare specimens for scanning by electron microscopy. These techniques will be used to continue research on other animal models as well as using scanning microscopy on human tissues. At the same time, plans were established for continuing collaboration on experimental pancreatic cancers.

TABLE 4: INTERNATIONAL CANCER RESEARCH TECHNOLOGY TRANSFER PROJECT - ICRETT -

(1 May, 1976 - 3 December, 1977)

TABLE I

Origin of Awardees

Argentina	4
Austria	1
Belgium	3
Brazil	1
Canada	3
Finland	2
France	8
Germany F.R.	10
Greece	1
India	4
Iran	1
Israel	10
Italy	2
Japan	5
Netherlands	2
New Zealand	1
Nigeria	1
Norway	3
Philippines	1
Poland	2
Sri Lanka	1
Sweden	4
Switzerland	1
Thailand	1
Uganda	1
United Kingdom	23
U.S.A.	29
Yugoslavia	1
	126

TABLE II

Destination of Awardees

Australia	1
Belgium	1
Canada	1
Colombia	1
Denmark	2
Finland	1
France	10
Germany F.R.	8
Israel	2
Japan	8
Netherlands	4
New Zealand	2
Sweden	10
Switzerland	6
Taiwan	1
United Kingdom	15
U.S.A.	52
U.S.S.R.	1
	126

TABLE 5: INTERNATIONAL CANCER RESEARCH TECHNOLOGY TRANSFER
- ICRETT -

December 4, 1977 to April 30, 1978

TABLE I

Origin of awardees	
Argentina	1
Austria	1
Canada	1
France	1
Germany F.R.	2
Greece	1
Hungary	3
India	2
Iran	1
Nigeria	1
Norway	1
South Africa	1
Sweden	3
UK	2
USA	15
Yugoslavia	1
	37

TABLE II

Desination of awardees	
Belgium	2
Denmark	1
France	3
Germany F.R.	4
Israel	2
India	1
Italy	1
New Zealand	1
Sweden	4
Switzerland	2
UK	4
USA	12
	37

A British biochemist, in an American laboratory, engaged in collaboration on studying the trapping of the metabolites of amino-azo-dye carcinogen with glutathione. The results of further studies in the two laboratories will continue to elucidate the function of glutathione on the dextoxification proc of potential carcinogens.

An Indian radiologist spent his ICRETT-sponsored time at the Roswell Park Memorial Institute to learn of the latest techniques and developments of radiation therapy of cancer. He was able to observe the treatment of Hodgkin's disease, using the combination of chemo-and radiation therapies, as well as recent developments in high energy radiation as a source for cancer treatment.

The ICRETT awardees are specialists in the fields of epidemiology, biochemistry, molecular biology, viral oncology, chemical carcinogenesis, cancer biology, experimental pathology, immunology, surgery, chemotherapy, radiation therapy and cancer diagnosis.

During FY 1978, 22 workshops were held under the sponsorship of the ICREW Program. These included small group interactions on topics such as "Molecular Biology of Adenoviruses," "Radiologic Response in Radiation Therapy," "Evaluation and Characterization of Malignant Melanoma," "Viral Xenogenization of Tumor Cells," "Expression of Anti-tumor Immunity," "Problems Associated with Lasers in Tumor Surgery," "Factors Controlling Stem Cell Proliferation," "Post-laryngectomy Speech Rehabilitation," "Modern Trends in Human Leukemia," and "Precancerous Conditions of the Stomach." It is anticipated that many reports of the ICREW Workshops will be published as monographs in the near future.

The ICRETT and ICREW Programs, following the initial years of introduction, have been well received and scientifically rewarding. This acknowledgement of their value has resulted in increasing numbers of applications each succeeding year of the programs. The programs have been very successful in promoting and supporting the exchange of research information among scientists from various parts of the world and, in turn, have increased the opportunities for both formal and informal collaborative research activities on the causes, treatment and prevention of cancer. Without these mechanisms for the exchange of cancer information, prevailing circumstances in the countries of some of the promising scientists might have delayed by months the opportunity for his or her learning of the most recent results in their fields of scientific endeavor In slightly more than two years, the ICRETT programs have enhanced international communication in science and the promotion of important scientific exchange in the science and the promotion of important scienctific exchange not covered by other research funding mechanisms. Many awardees have testified that the purpose of their visit to a foreign laboratory was accomplished and that their exchanges were most fruitful. In several instances significant contributions to the cancer literature resulted from the visits.

BILATERAL AGREEMENTS

The National Cancer Institute has been a party to formal and informal Bilateral Agreements since 23 May 1972, the time of the signing of the USA-USSR Agreement for Cooperation in the Fields of Medical Science and Public Health. Subsequently, additional cooperative programs were formalized between NCI and the Japanese Society for the Promotion of Science (1974); the Institute of Oncology of Warsaw, Poland (1976) as a part of the USA-Polish Peoples Republic Agreement; in 1975 with the French Institut National de la Sante et de la Recherche Medicale (INSERM) under the earlier NIH Agreement with INSERM; the Cairo Cancer Institute (1975) under the aegis of the USA-Arab Republic of Egypt Agreement; and the Ministry of Science and Technology of the Federal Republic of Germany (1976).

In the Fiscal Year of 1978 NCI became party to a sixth bilateral association with the Ministry of Health of the Italian Republic. Negotiations are in progress for still another agreement with the People's Republic of Hungary. The following sections deal with the progress that has been achieved in the cooperative efforts of NCI and cancer research institutions of the Arab Republic of Egypt, the Republic of France, the Federal Republic of Germany, the Italian Republic, the Japan Society for Promotion of Science, the Polish Peoples Republic and the Union of Soviet Socialists Republics.

NCI-CAIRO CANCER INSTITUTE, Cairo, Egypt:

Supported under the auspices of the Special Foreign Currency Programs (PL 480), Egyptian cancer specialists and NCI staff are working together on two bladder cancer programs in which there is a relationship to bilharzial infection. One of the projects deals with the treatment of bladder cancer whereas the other related to the cytologic diagnosis of that cancer. Clinical protocols were agreed to for the treatment of carcinoma of the bilharzial bladder using hexamethylmelamine (HMM), VP-16, methotrexate and bleomycin. Results indicate that HMM reduces the size of tumor for subsequent surgical intervention. Although results with the use of the other drugs are not encouraging, they continue to be evaluated clinically.

Recently, collaborative efforts were initiated by the Memorial Sloan Kettering Cancer Center and Mansoura University to study the efficacy of pre-operative radiation therapy and cystectomy in the treatment of bladder cancer. As well, a joint project on the cytologic detection of carcinoma of the bilharzial bladder was initiated during this period. One of the scientific objectives is a demographic survey of the population, not attempted previously. High risk populations have been identified and bilharzial studies will be pursued to establish the natural history of bladder cancer in these populations.

A major activity between the NCI and the Cairo Cancer Institute (CCI) is that of the exchange of scientists. An NCI clinician spent nine months in the CCI for collaborative research efforts and clinical trials of cis-platinum and Adriamycin in the treatment of bladder cancer, especially patient response and toxic manifestations. His was a scientifically rewarding experience in view of the strong evidence to support the view that bilharziasis due to S. haematobium is associated with squamous carcinoma of the bladder. Reciprocally, a senior surgeon from the CCI spent several months visiting NCI and other American cancer centers to exchange information on the method of treatment of bladder cancer especially the American clinical approach. In another instance, an Egyptian radiologist came to the M.D. Anderson Hospital and Tumor Institute (Houston, Texas) for advanced training and practical experience in radiation therapy. Unique to his training were short courses in medical physics in addition to active participation in a research project on the "Analyses of Complications in Extended Field Techniques in Irradiation in Squamous Cell Carcinoma of the Cervix." And recently, an Egyptian pathologist began an extended period of training in experimental pathology in NCI and V.A. Hospital in Washington. His principal interest is in the kinetics of varying types of cancer cells.

NCI-INSERM, Paris, France:

Scientific efforts are extant in three cancer problem areas under this Agreement--viral oncology, hormonal regulation and cancer, and clinical trials and treatment research.

Research activities during this reporting period have been progressive because of the team efforts of established investigators and younger scientists as well.

During this year's session of the Joint Working Group for VIRAL ONCOLOGY, the French Delegation presented a comprehensive report on research in viral oncology in France as well as a "draft" report on "The French Guidelines in Recombinant DNA Research." Simultaneously, a joint symposium was held dealing with research being conducted, in both countries, on RNA tumor viruses, DNA tumor viruses, and the role of viruses in human cancer.

Five Americans visited for brief periods the Pasteur Institute, the INSERM Virus Unit in Lyon, and others, whereas, six French scientists spent from four weeks to twelve months in American institutions such as the NCI, Rockefeller University and Harvard University. During these exchanges collaborative experiments were undertaken on such topics as cell transformation, teratocarcinoma cell systems, the genetics of RNA tumor viruses, cellular antigens, histocompatibility antigens and papilloma virus.

The objectives established earlier by the Joint Working Group on HORMONAL REGULATION AND CANCER included study of the biochemical mechanisms of cellular regulation. Since then, collaborative efforts have included "the mechanism of hormonal induction of ovalbumin in the chicken." the effect of glucocorticoids on lymphoma cell lines," "hormonal regulation of receptor synthesis" and "the nature of hormonal receptors in malignant and non-malignant tissues and cell lines." Progress in these areas will be presented during the next meeting of this group in conjunction with an INSERM-sponsored Conference on Endocrinology in Seillac, France, in November 1978.

Eight American specialists engaged in laboratory visits and research in French facilities while five French investigators came to American cancer centers to partake in collaborative research.

At the outset, six problem areas for joint study were agreed to by the Joint Working Group for CLINICAL TRIALS AND TREATMENT RESEARCH. These are: 1.) pharmacology and clinical trials of new analogues of nitrosourea; 2.) treatment of osteogenic sarcoma; 3.) plasmapheresis; 4.) biochemical pharmacology of 5-fluorouracil and methotrexate; 5.) gastrointestinal cancer; and 6.) studies on the anthracyclines.

In Marseilles, in July of this year, overall progress was considered to be satisfactory. For instance, joint studies are in progress with high dose methotrexate protocols and pharmacokinetic studies of 5-FU. Gastrointestinal cancer treatment studies are continuing, using FAM chemotherapy and chlorozotocin. Studies on the treatment of osteo carcinoma are in progress using cis-platinum derivatives, anthracyclines and the combination of chemoimmunotherapy.

Reports of results were the basis for a seminar and conference sponsored by INSERM and other French organizations.

Further exchanges of data occurred during clinical trials and treatment research efforts ensued during the visits of five Americans to French facilities and reciprocal visits by four French clinical researchers.

NCI-MINISTRY OF SCIENCE AND TECHNOLOGY, Germany:

The major event of the year was the "VIth Engineering Foundation Conference on Automated Cytology" held at the Schloss Elman, Bavaria, Federal Republic of Germany, 23-29 April 1978. The conference was attended by over 500 scientists and technicians from various European countries, Israel, Latin America and North America. The NCI provided partial support for attendance by some 70 American scientists as active participants.

The Conference consisted of three sessions in which a combined total of more than 180 scientific presentations was rendered by the participants. As a result, testimony was given to the scientific interest in and rapid advances being made in the field of automated cytology, with the major effort being devoted in American and European laboratories. The success of the conference is attested to by the information presented for the improvement of automated cytology technology for use in cervical cancer diagnosis and a potential application to detection of cancers of the oral cavity. German scientists indicated that their automated cytology apparatus will soon be marketable.

Under the aegis of this Agreement, a biochemist from the Batelle Institute in Frankfurt spent six months in the Laboratory of Pathology, National Cancer Institute, to engage in collaborative research on the "Immunofluorescence of Histone-H1 in Stimulated Lymphocytes Measured by Flow Cytophotometry."

The cooperative effort has shown that histones may be used to obtain fluorescent labelled specific antibodies for use in flow cytophotometry to identi stimulated lymphocytes. The technique may be applicable to setting up model systems for the identification of cells with abnormal chromosome structure.

A senior investigator from the Lawrence Livermore Laboratory in California spent four months in the University of Leiden collaborating in a project sponsored by the Germany Ministry of Research and Development on a fluorescence microscope-based diagnosis system. The technique was developed by the Leiden group for research on the diagnosis of cervical carcinoma. Earlier studies showed that dysplastic and cervical carcinomatous cells contain higher levels of cellular plasminogen activators. The cooperative exchange involves the use of fluorescent probe for detecting plasminogen activators and to use the LEYTAS system, developed by German and Dutch scientists, to distinguish between normal and dysplastic or carcinomatous cells.

A pathologist from the German Cancer Center in Heidelberg spent six weeks in the laboratory of Dr. Harold L. Steward, NCI Scientist Emeritus, to discuss and investigate the development of a cooperative registry for experimental pathology which will be based at the German Cancer Center.

The activities of this year have been successful in that many experts from several countries were enabled to assemble to discuss latest developments in the area of automated cytology as well as possibilities for effective cooperation in research. Negotiations are underway to expand this bilateral program to include: 1.) the testing of chemical carcinogens; 2.) the determination of the mechanism(s) of action of carcinogenesis; and 3.) studies of the metabolism of carcinogens. Anticipated for the future is a joint program on the development of new anticancer drugs and the pre-clinical testing of those developed.

NCI-MINISTRY OF HEALTH, ItalianRepublic:

This Agreement has as its basis, the formal Memorandum of Understanding for Cooperation in the Field of Health and Medicine signed, on 21 November 1977, by the Secretary of the Department of Health, Education and Welfare and the Minister of Health in Rome, Italy. Subsequently, a delegation of Italian scientists visited the National Institutes of Health (March, 1978) to explore cancer research areas of mutual interest for collaborative study. There was acknowledgement of the firm collaborative base that had been established through current NCI-sponsored research contracts and grants. Other areas, currently not included in this base, were explored in detail.

As a result of the exchange by the delegations, the areas for joint research agreed to by the parties include: 1.) cancer treatment research--drug development and clinical studies; 2.) carcinogenesis; and 3.) epidemiology.

Later, there was elaboration of specific areas to be pursued jointly in carcinogenesis and epidemiology. A decision was reached jointly to initiate specific cooperative projects in those areas. In CARCINOGENESIS, joint efforts would be devoted to: 1.) experimental biology of breast cancer; and 2.) the role of nitrosamine as a carcinogen. In EPIDEMIOLOGY, studies would include 1.) childhood cancers and malformation; 2.) cohort studies on environmental factors and high risk groups; and 3.) comparison of dietary and nutritional factors on the incidence of colon cancer. Detection of carcinogens, testing of chemical carcinogens, and the relationship of smoking to cancer were established as areas for future consideration.

Program coordinators from each side are to be appointed by the respective sponsoring agencies, followed by the establishment of informal working groups for holding workshops and planning for specific collaborative research projects and the exchange of scientists.

NCI-JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE:

On 31 October and 1 November 1977, the Joint Scientific Group of the Japan Society for the Promotion of Science and the National Cancer Institute met in Bethesda, Maryland, to review and evaluate progress in the cancer research activities sponsored jointly by the two countries. The Program has been very productive during the past year. Several meetings were convened for exchanges on the treatment of cancer. Dialogues were continued on topics in the basic research areas. During the review meeting, scientific sessions were held on the "Current Status of Research on Automated Cytology" and the "State of Pre-Clinical and Experimental Immunotherapy of Cancer."

The exchange of scientists from both countries continued to be very active with a total of 30 from both countries spending a few weeks to several months in the host countries.

During FY 1978 over 230 Japanese and American scientists participated in the scientific meetings and seminars and as exchange visitors.

During 1977 and 1978 the newly formed Joint Steering Committee met twice to discuss the restructuring of the Program to be promulgated during FY 1978 in view of the pending conclusion of the first 5-year period of the US-Japan Cooperative Cancer Research Program. It was agreed generally to establish four broad categories, namely, Carcinogenesis, Cancer Biology and Diagnosis, Cancer Treatment and an Interdisciplinary Program, to provide for greater breadth of an ever expanding field of cancer research. In the past five years, significant progress has been noted in the exchange of information and scientific personnel among the existing eleven Program areas. It is anticipated that the newly-structured program will provide opportunities to support research areas which are not included in the current program, for instance, cellular and molecular biology, genetics and molecular oncology, radiation biology and a multidisciplinary approach to cancer treatment and environmental carcinogenesis. The new Program envisages opportunities to support workshops and symposia on newly emerging fields in cancer research.

A major effort of the Program this year was the work of the Joint Drafting

Subcommittee which accomplished the drafting of the Second Progress Report (1976-1977) for the US-Japan Cooperative Cancer Research Program. The projected date of the publication is October 1978, in time for the Fifth Annual Review Meeting of the Joint Scientific Groups, representing the Japan Society for the Promotion of Science and the National Cancer Institute.

On 16-17 September 1977, the CANCER IMMUNOLOGY PROGRAM AREA sponsored a meeting on "Immunotherapy of Cancer and its Fundamental Basis," in Osaka, Japan. The purpose of the meeting was to exchange current information concerning clinical studies on immunotherapy and immuno-chemotherapy of cancer patients, using immunopotentiators, such as mycobacterium and its components. Fundamental studies on the mechanism of immunopotentiation were discussed.

Nine American scientists and clinicians representing the NCI and over 15 Japanese scientists and cancer specialists attended the meeting. After the meeting, three of the American participants visited several Japanese laboratories to present seminars and to discuss new techniques and experimental data.

Another meeting on Cancer Immunology was held in Maui, Hawaii, in September 1978. New topics discussed were: (1) tumor associated immunity; (2) characterization of immune cells; (3) suppression of immune responses; (4) macrophages and natural killer cells; and (5) preclinical immunotherapy and clinical immunotherapy. Over 24 scientists from Japan and the United States participated in the sessions.

In December 1977, the CHEMICAL CARCINOGENESIS PROGRAM AREA sponsored a 3-day symposium on the "The Role of DNA Repair and Misrepair in Radiation and Chemical Carcinogenesis" in conjunction with the First International Radiation Biology Symposium on "Molecular Mechanisms and Genetic Factors in Radiation Carcinogenesis." The meetings took place in the Radiation Biology Center of Kyoto, Japan. Participants included 7 American scientists and 39 Japanese scientists as well as five scientists from Europe. The scientific sessions were devoted to: "DNA Repair Defects in Hereditary Diseases with High Incidence of Cancer;" "Genetic and Epigenetic Factors in Radiation and Chemical Carcinogenesis;" and "Inducible Repair and Misrepair in Carcinogenesis and Mutagenesis."

The exchange of scientists and information have continued to be productive. Several collaborative activities are continuing in mutagenicity and carcinogenicity testing as well as identifying new carcinogens resulting from pyrolytic action on proteins and amino acids.

The LUNG CANCER PROGRAM AREA held its Fourth Joint Seminar on Lung Cancer on 2-3 February 1978 at the East-West Center, Honolulu, Hawaii. In attendance were six members of the Japanese Lung Cancer Group and seven invited American cancer specialists. The seminar was an extension of the continuing dialogue and exchange of recent advances in the diagnosis and treatment of lung cancer. The topics discussed: 1.) Progress in Morphology: The Updated WHO Classification of Lung Cancer, with Special Reference to the Morphologic Subtypes of Small Cell and Large Cell Carcinoma; 2.) Advances in the Immunotherapy of

Lung Cancer; 3.) Progress in the Treatment of Small Cell Carcinoma, including Multidisciplinary Treatment Methods; 4.) Treatment of Non-Small Cell Lung Cancer, both Multidisciplinary Treatment and Chemotherapy; 5.) Indications for Surgery in Advanced Lung Cancer; and 6.) Cell Kinetics and Marker Substances: Their Role for Planning and Monitoring of Therapeutic Studies.

Intensive discussions on the various types of treatment of lung cancer ensued following the formal presentations. Informal discussions during and after the scientific sessions enabled all participants to exchange the latest information on clinical research being conducted in both countries. It is anticipated that these discussions will lead to collaborative activities in lung cancer inasmuch as the incidence rates in both countries are increasing. Efforts in the future will include comparisons of data on clinical results.

As a result of the seminar, two of the American lung cancer specialists were invited by their Japanese colleagues to visit several cancer research centers in Japan and to present talks and exchange views on lung cancer treatment. In addition, they also attended the conference of the International College of Chest Physicians held in Kyoto in July 1978.

The BREAST CANCER PROGRAM AREA sponsored a meeting on "Hormone and Receptors in Breast Cancer" in March 1978, at the East-West Center, Honolulu, Hawaii.

The major purpose of the meeting was to permit the exchange of data on the relation of hormones to breast cancer in two different population types. It has been reported that significant differences are present in the incidence and prognosis of breast cancer in Japan and the USA. It is now generally recognized that endocrine responsiveness can be predicted at least in part, by the steroid receptor content of the breast tumor. The Japanese and American scientists discussed their data on studies on hormone receptors in their respective populations and correlated these results with histopathology, free interval and endocrine responsiveness. In addition, they discussed the similarities and differences in the subcellular biochemical pathways concerned with hormone dependence in the two patient populations.

There were six Japanese cancer specialists who conferred with 11 American investigators to compare research data and informal discussions.

The Joint Breast Cancer Group is making plans to hold a meeting on the "Treatment of Breast Cancer", scheduled for either late 1978 or early 1979.

The JOINT CANCER VIROLOGY GROUP held a meeting at the East-West Center in Honolulu, Hawaii in May 1978. The major purposes of the meeting were to exchange information and to encourage collaborative efforts among Japanese and American virologists. Emphasis was given to the mechanism(s) of oncogenesis by DNA tumor viruses at the molecular and cellular levels and in the host. Discussions were focused on recent studies on the attempts to identify and to isolate the oncogenic fragments of the viral genomes and also on the function of their own gene products. Extensive discussions among seven Japanese and nine American virologists were held on the correlation of the recent basic findings in virus research with efforts to determine the etiologic role of DNA viruses in certain types of animal and human neoplasias.

The ANALYTICAL EPIDEMIOLOGY PROGRAM AREA sponsored a Joint Conference on "Biostatistics in the Study of Human Cancer," in May 1978 at the Radiation Effects Research Foundation in Hiroshima, Japan. A group of twelve Japanese and ten American biostatisticians, epidemiologists and cancer specialists met for a four-day conference to discuss the effective application of statistical methods to cancer research. The intent was for the promotion of statistics in cancer research. The agenda included sessions on: 1.) cancer biostatistics in the U.S. and Japan; 2.) overview of cancer research pertinent to statistics to the U.S. and Japan; 3.) biostatistical methods in cancer epidemiology; and 4.) study environments in the U.S. and Japan, including data resources for the study of cancer in man, computer facilities and the role of mathematical brains in cancer research.

The meeting was a success in that it brought together Japanese and American statisticians and epidemiologists and other interested observers to discuss mutual problems encountered in advancing the status of biostatistics and cancer epidemiology. The conference provided an excellent forum for experts from both sides to obtain information for mutual benefit by drawing on the experience of investigators from both countries.

The Joint Working Group on HIGH LET RADIATION THERAPY PROGRAM AREA sponsored a "Workshop on Radiation Therapy" on 18-19 June 1978, in conjunction with the meeting of the NCI Radiation Therapy Oncology Group which met in Philadelphia, Pennsylvania. The main purpose of the workshop was to discuss the progress of ongoing cooperation in the fast neutron radiotherapy program and the development of common clinical trial protocols. Plans were discussed for proposed cooperative investigations on the role of hyperthermia, use of radiosensitizers, and other alternatives to High LET Radiation Therapy. Among the agenda items were: 1.) Fast Neutron Radiobiology and Radiotherapy; 2.) Proton and Charged Particle Radiobiology and Radiotherapy; 3.) Treatment Planning; 4.) High Dose Rate Brachytherapy and Intraoperative Therapy; and 5.) Hypoxic Cell Sensitizers and Radioprotectors. The Japanese delegation totalled six active participants and four contributing observers, while the United States was represented by thirteen investigators.

The Workshop made it possible for long informal discussions to establish clinical protocols and a continuing collaboration to obtain clinical data in future years. It gave the participants an opportunity to extend their interests in other areas of radiation therapy, not previously covered under the present program structure. It is anticipated that new radiation treatment methods will result from future discussions.

The High LET Radiation Therapy Program Area has one of the most active and productive group activities due to the organizers and the opportune timing of developments in radiation therapy occuring on both sides of the ocean.

The CANCER THERAPY PROGRAM AREA sponsored the US-Japan Joint Symposium on "Phase I and II in Cancer Chemotherapy" in Tokyo, Japan, 5-7 June 1978. The subjects discussed included: (1) The design and methodology of Phase I and II studies; (2) Clinical evaluation of drug analogues; (3) Clinical evaluation strategy in specific disease types, namely, lung cancer, breast cancer, gastrointestinal cancer and genitourinary cancer; (4) New drugs, including screening and development, and new drugs in clinical trials; (5) Discussion on four classes of drugs, including nitrosoureas, bleomycin, anthracyclines and fluorinated pyrimidines; and (6) Joint cooperation on gastric cancer treatment protocol.

The symposium was productive and very informative in that the participants discussed the clinical data accumulated over the past 4 or 5 years and evaluated the treatment regimens and the preliminary results of the regimins. The resulting discussions were useful in planning the programs for the future, which were discussed at the special session following the symposium.

It is anticipated that the Cancer Therapy Program will be restructured as the Cancer Treatment Program Area and will approach cancer from the standpoint of combined modalities with an emphasis placed on disease sites.

The major highlight of the CYTOLOGY PROGRAM was the exchange of two senior pathologist-cytologist investigators from both countries to spend extended periods of time in each country. A member of the Department of Gynecology and Obstetrics from Hokkaido University spent 8 months with the Automated Cytology Program at the National Cancer Institute to study the fluidic system of cell analysis used in the United States. Several joint review articles were published to compare the analytic systems used in Japan and the U.S. The senior cytologist from the NCI is spending 9 months at the National Cancer Center Research Institute in Tokyo to collaborate with Japanese experts on automated cytology and cytogenetics. These two activities will lead to more intensive collaboration in order to meld some of the advantages in the two systems being used in both countries.

The current cooperation has been extremely productive and useful in bringing newly developed technology for comparative and collaborative activities.

A workshop on "Experimental Approaches in the Therapy of Micrometastases" was sponsored by the METASTASIS PROGRAM AREA in Nara, Japan, 26-28 October 1978. The workshop focused on using model systems to investigate two main approaches, immunotherapy and chemotherapy, for the treatment of micrometastasic lesions. The immounolgic approach included investigations on the role of macrophages, immuno-adjuvants and antibodies. The chemotherapeutic approach involved the role of liposomes as carriers of chemotherapeutic agents and the application of specific therapeutic agents and avenues in the treatment of metastatic lesions. It is anticipated that these discussions will lead to collaborative research activities in the therapy of micrometastatic lesions. The workshop was a very informal group of 11 Japanese and 8 American investigators, with a great deal of discussion during and after the programmed sessions.

Individual Scientist Exchanges under the US-Japan Cooperative Cancer Research Program

Program Areas	American Scientists	Japanese Scientists
Breast Cancer		1
Lung Cancer	2	2
Analytical Epidemiology	2	1
Immunology	4	3
High LET Radiation Therapy	4	2
Carcinogenesis		3
Cancer Therapy		1
Cytology		1
Cancer Virology	1	
	13	14

NCI-INSTITUTE OF ONCOLOGY, Warsaw, Poland:

The exchange of scientists between the Polish Peoples Republic and the United States has been very active during FY 1978. Eight Polish cancer specialists came to the United States while ten American scientists visited cancer institutes in Poland.

One of the Polish visitors, a radiologist from the Institute of Oncology, Gliwice, spent four months at the Memorial Sloan-Kettering Cancer Center to receive advanced training in medical physics. Much of his time was spent learning new developments in computerized treatment planning.

A Polish thoracic surgeon attended the World Conference on Lung Cancer in South Carolina, after which he spent three weeks visiting several of the American Comprehensive Cancer Centers to discuss recent advances in the surgical and combined treatment of lung cancer as well as to present several seminars on the treatment of lung cancer in Poland.

A physician-oncologist is spending one year at the Baltimore Cancer Research Center for training in clinical oncology. It is anticipated that this scientific exchange will result in collaborative studies on cancer treatment following his return to Poland.

A female biochemist from the Institute of Oncology, Warsaw, is investigating the production of ectopic placental protein and techniques of radioimmunoassay at the National Institute of Arthritis, Metabolism and Digestive Diseases. Another female, a physicist, from that institute is receiving intensive training in medical physics at the University of Texas System Cancer Center in Houston, Texas. She is interested primarily in radiation biology and radiation dosimetry.

The NCI is hosting a Polish pharmacologist, who is investigating the DNA-protein binding of platinum complexes in neoplastic cells and the nature of DNA damage responsible for the biologic effects of platinum complexes. The experimental data that he and his NCI colleagues have derived will be very helpful in understanding the development of assay methods for testing the efficacy of therapeutic drugs against tumor cells.

An oncologist from the Polish Academy of Sciences has been visiting the NCI and the Roswell Park Memorial Institute in Buffalo for scientific exchanges on the latest advances in chemotherapy and the use of combined modalities for the treatment of cancer.

During his visit to Poland, an NCI pediatric oncologist was able to confer and discuss possibilities for collaborative clinical research in the diagnosis and treatment of childhood neuroblastoma with counterparts in the National Institute for Mother and Child in Warsaw. The exchange led to the establishment of a cooperative effort for the treatment of neuroblastoma, using a mutually acceptable clinical protocol. Methods were established for facilitating the exchange of clinical data. As the study progresses, a Polish physician will spend a protracted period of time at the NCI to extend further the collaborative efforts on this childhood cancer problem.

An oncologist from the Roswell Park Memorial Institute was invited to Poland to present a series of seminars on "New Leads and Approaches in Cancer Therapeutics" in the Institutes of Oncology in Warsaw and Gliwice. While there, he was able to visit and present lectures on cancer therapy in the Institute of Biochemistry and Biophysics and the Institute of Immunology and Experimental Therapy, both in Warsaw.

A cancer biologist from the Oak Ridge National Laboratory visited the Academy of Medicine in Warsaw to discuss collaboration on the effect of several anti-oxidants on the inhibition of benzo(a)pyrene metabolism. Collaborative research activities between the two institutions are continuing in a satisfactory manner.

Two radiologists from the M.D. Anderson Hospital and Tumor Institute, Houston, were invited by the Institute of Oncology in Warsaw to consult with Polish physicians and radiobiologists on the preclinical and clinical phases of a fast neutron radiotherapy project initiated in Poland.

Three American radiologists were invited to participate in a Workshop on Experimental Radiotherapy held at the Institute of Oncology, in Krakow, and co-sponsored by the Polish Institute of Nuclear Physics. One of the main topics of the workshop was on the use of high energy neutron particles for cancer therapy. The papers of the participants are to be published in the Polish journal, Nowotwory.

A member of the NCI Baltimore Clinical Cancer Center spent 10 days in the Institute of Hematology in Warsaw. He was able to observe and discuss the treatment of hematologic malignancies occurring in Poland. He was interested primarily in the treatment of acute leukemia in adults, the treatment of Hodgkin's disease and the use of Butocin in Poland for the treatment of chronic myelocytic leukemia.

A dermatologist from the NCI visited the Department of Dermatology of the Warsaw Medical School to observe and study patients with epidermodysplasia verruciformis. There are only about 200 cases on record of this virus-caused disease and about a dozen cases of this disease, which are pertinent to his studies of skin cancer are patients in this Warsaw institute. Possibilities for future collaboration are being considered.

USA-USSR AGREEMENT FOR HEALTH COOPERATION:

American-Soviet activities for the Fiscal Year 1978 were launched with the Sixth Meeting of the USA-USSR Joint Committee for Health Cooperation in October 1977. Co-chaired by Dr. Julius Richmond, Assistant Secretary for Health, DHEW, and Dr. D.D. Venediktov, Deputy Minister of Health, USSR, the Committee acknowledged the progress that had been achieved since 23 May 1972 and endorsed the effort projected in the six cancer problem areas under joint study.

Since the inception of American-Soviet cooperation in cancer, 34 joint meetings of delegations have been convened, including eight symposia and conferences.

177 visits have been made to the Soviet Union by 125 American cancer specialists and cancer-affiliated biomedical scientists. Cumulatively, these Americans spent a total of 97 man-months in the USSR in cancer-related missions. Reciprocally, 90 Soviet cancer specialists and biomedical personnel have journeyed to the United States on 111 science missions for a cumulative period of 138 man-months.

More than 50 papers, three symposium proceedings and one joint monograph have publicized the results ensuing from cooperative research projects.

American institutions actively participating in this program, in addition to the NCI, include some twelve Comprehensive Cancer Centers and a number of specialized laboratories, e.g., in anticancer drug development and preclinical testing, virology and genetics. On the Soviet side, the Cancer Research Center in Moscow coordinates the activities and involvement of most of the 21 major Institutes of Oncology as well as some ten biomedical institutes throughout the USSR.

Today, the activities in six cancer problem areas of chemotherapy, immunology, virology, genetics, epidemiology and cancer control/centers encompass some 40 finite investigational topics.

The key elements in the American-Soviet cancer program have been: 1.) the establishment of effective channels of communication between individual and groups of scientists; and 2.) the mutuality of concept, planning and conduct of joint research in both countries according to agreed work plans and mutual research protocols developed during the working meetings of delegations in the six problem areas.

During this year in the CANCER CHEMOTHERAPY Problem Area, clinical collaboration has had both positive and negative aspects. One experience with an actual joint protocol, in the area of lung cancer, was not successful. On the other hand, the clinical studies carried out in the USSR with American drugs, and utilizing Soviet clinical protocols, have provided us with useful clinical information. Since more American drugs are under clinical study in the USSR than are Soviet drugs in the USA, we are obviously acquiring more clinical data related to our drugs than they for their drugs.

Although most of the earlier Soviet drugs offered to us for consideration of clinical utility were of relatively little interest, some of the newer ones--DIOXADET, for example--appear to possess biologic characteristics that may justify clinical trials in the USA. Because of the magnitude of our effort, more biologically active American than Soviet drugs have been involved. At this stage of cooperation, however, five of the newer Soviet preparations (DIOXADET, FOTRIN, OLIVOMYCIN, PALPHICERIN AND PROSPIDINE) are under review by NCI's Drug Evaluation Committee because of their demonstrated antitumor activity in U.S. animal test systems.

As reported previously, the exchange of information in this area has resulted in the publication of a joint monograph, entitled, METHODS OF DEVELOPMENT OF NEW ANTICANCER DRUGS. The manuscript for a second joint monograph on preclinical testing of anticancer drugs is just about ready for publication in English and in Russian. Thus, we believe that now we have a far better insignt to the approaches to drug evaluation used in the USSR and the characteristics of their specific screens and other procedures for testing for potentially useful anticancer drugs.

Not to much of scientific significance has evolved in the problem area of cancer immunology. The fifth USA-USSR Meeting on this subject was to be held in Moscow during the period 4-10 June. A symposium on the "Biology of Malignant Melanoma" was scheduled as an adjunct. Unfortunately, this American-Soviet session was postponed because of the activities in the Soviet Union attending the trials of Soviet dissident scientists. This situation resulted in the postponement* as well of the Sixth USA-USSR Meeting on Cancer Chemotherapy schedules for the period 11-24 June in Moscow, Riga and Odessa.

During the "Fifth USA-USSR Meeting on Cancer Virology", 26-28 October 1977 in Bethesda, there was joint expression of mutual satisfaction with the progress of this cooperation.

The delegations expressed interest in conducting collaborative studies in the following areas:

1. Studies of viruses isolated from human tissues in cell culture or in animals and their possible role in the pathogenesis of human neoplasia;

2. Continuation of studies on non-human primate viruses as they may relate to human cancer;

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* The postponements were made necessary following "personal conscience decisions of members of each delegation, decisions acceptable to DHEW and the Department of State. Thus, adequate expertise was not available to pursue scientifically productive exchanges and reschedule of the meetings is in negotiation based, again, on STATE and DHEW policy to continue the exchanges.

3. Studies of the role of viruses in the induction of human breast tumors, including continuation of those on Mason Pfizer-monkey Virus (MP-MV) and related viruses;

4. Studies on co-carcinogenesis, that is, viral/viral, viral/chemical and viral/hormonal;

5. Characterization of nucleic acids and their role in the induction of animal and human cancers, in particular: (a) detection of tranforming sequences in cellular nucleic acids; and (b) molecular genetic studies of DNA from human tumor cells;

6. Studies of viral proteins as probes for viral gene expression in animals and humans; and

7. Studies on "oncogenic" viruses important to human ecology, for example, those derived from avian, bovine and feline species.

These areas represent essentially a continuation and, in some cases, an increase in cooperative research efforts. Both sides accepted "the possibility" that: (a) the application of techniques of genomes of oncogenic viruses; (b) methods for structural and functional studies of genomes of oncogenic viruses; (c) studies of the mechanism(s) of neoplastic processes; and (d) the search for fundamentally new approaches to prophylaxis and therapy of cancer, might be applied to problems of cancer virology.

To date, two findings of significance have evolved--Type C virus isolation and Type D RNA virus characterization. It is still difficult to judge the significance of the findings associated with the isolation of Type C virus. Conclusive experiments have not been done to determine whether the viruses activated in these studies are etiologically involved in this disease. The work on virus isolation and identification was performed in the USA. The availability of a large colony of pedigreed baboons represents the unique contribution of the USSR.

The role of the group of Type D RNA viruses, if any, in human cancer has not been defined as yet. With the close cooperation of USA laboratories, USSR scientists have shown that these isolates are closely related, if not identical, to the group of viruses described earlier in the USA and known as MP-MV. Currently, there is considerable interest in a new group of RNA viruses resembling MP-MV, because virus information related to this group has been found in patients with breast cancer.

A subsequent review of the accomplishments in the area of MAMMALIAN SOMATIC CELL GENETICS RELATED TO NEOPLASIA, elaborated upon during the "Fourth USA-USSR Meeting" (June 1977, Tbilisi, Georgian SSR), led to agreement that American-Soviet interaction in this problem area was good. Recognition was given to the fact that in Tbilisi there was participation and interacti among Soviet geneticists representing institutions of both, the Academy of Sciences and the Academy of Medical Sciences. The Americans' view was that this interchange was very productive.

A summary of the proceedings of the Tbilisi meeting has been prepared for publication in Genetika in the Soviet Union and in Mammalian Chromosome Newsletter in the United States.

A "Newsletter" has been initiated for exchange by the American and Soviet delegations. Each member will submit one or two abstracts of articles thought to be particularly relevant and interesting to those American and Soviet scientists collaborating in this field of cancer-related research.

Collaboration for further studies of the genetic effects of the USSR anti-cancer drug, FTORAFUR, has been established between the M.D. Anderson Hospital and Tumor Institute (Houston) and the Cancer Research Center (Moscow). In examining the chromosome damaging action of this chemotherapeutic agent on normal and malignant cells, Soviet scientists have found that its mutagenic action is more severe in malignant cells whereas normal cells appear to be spared of chromosome breaks and other aberrancies.

The exchange of biopsied specimens and cell cultures from tumors and rare genetic disorders predisposing to cancer, e.g., Xeroderma pigmentosum, will enable Americans and Soviets to carry out complementation studies for determining whether the genetic basis of the disease is the same or differs from country to country.

As the program in CANCER EPIDEMIOLOGY developed, there was agreement, initially, to perform joint epidemiologic research on breast cancer. A project is now in effect between the NCI, the Harvard School of Public Health, the Cancer Research Center in Moscow and the Institute of Experimental and Clinical Medicine in Tallinn, Estonian SSR. Two studies are being pursued jointly: 1.) an analysis of breast cancer case-control data; and 2.) feasibility studies of urinary estrogen profiles. In the first, the Soviet side has provided data on some 1500 Estonian women (500 breast cancer cases) which are being analyzed according to procedures used by the American group in Harvard. The second study relates to the hypothesis that the pattern of a woman's estrogen metabolism during the earlier years of reproductive life is an important determinant of her lifetime breast cancer risk. Fifty urine samples from non-parous and parous Estonian women have been provided for analysis which is being performed by an Australian group in collaboration with Harvard.

From 28 November to 2 December 1977, the NCI, the University of Washington and the Fred Hutchinson Cancer Center hosted American and Soviet epidemiologists for a "Workshop on the Epidemiology of Gynecologic Cancer."

The tone of the workshop was set in the acknowledgement by American and

Soviet participants that a decrease in morbidity rates of cervical carcinoma and an increase in morbidity rates of one or more cancers of hormone-dependent target organs (breast, uterine corpus, ovaries) are being observed in both countries and in many other developed nations. It was noted that these changes in cancer morbidity are probably due to changes in risk factors and that comparative studies of cancer incidence in different regions of the world will favor detection of these risk factors.

As a result of the scientific deliberations during these sessions, the following studies have been recommended for adoption and subsequent implementation during the Fifth USA-USSR Meeting on Cancer Epidemiology (USA, April 1978).

1. Incidence studies--data, covering period 1970-1980 will be collected in designated areas of the USA and the USSR on:

    a. Cancer of the cervix, and

    b. Different histologic types of cancers of the ovary

2. If there is a reason to believe that increases or decreases are occurring in one or more of the histologic types of ovarian cancers, repeated or ongoing studies should be considered to describe the changes.

3. That there be an exchange of published results of case-control studies of endometrial cancer in each country as well as future publications arising from studies currently in progress.

4. Consideration of case-control studies which collect and analyze data describing patients with cancer and appropriate controls to explore risk factors and identify possible etiologic factors for two sites of gynecologic cancer:

    a. Cervix--high and low risk to dysplasia, carcinoma in situ and invasive cancer; and

    b. Ovary.

5. A Soviet-developed questionnaire was considered as a possible model for the design of a standard questionnaire that would be acceptable for data collection, paralleling an analysis of biologic specimens, case by case.

In general, joint studies such as these and those in progress offer opportunities to American epidemiologists for: a.) exploiting the enormous ethnic and cultural differences in the Soviet Union to help "sort out" environmental versus genetic factors related to cancer; and b.) analyzing extensive records of Soviet workers to uncover work-related exposure associated with cancers.

Progress in the area of CANCER CONTROL AND CANCER CENTERS has been impressive in three of the four investigational topics.

In Topic I--"Methods of Early Detection of Breast Cancer"--information has been accumulated on 9,321 Soviet women, none of whom had complained previously of the presence of any nodules in the breast. The diagnosis of breast cancer was established in 25 women or, an incidence of 0.27%. Seventeen of these had only local involvement (12 showed cancer microfoci and 5 with carcinoma in situ without lymph node involvement).

Studies in the USA from 1973 to 1 July 1977, on 270,000 women screenees show a detection of breast cancer in 2500 women. At first screening, the prevelance of breast cancer was 5.4 per 1000 women examined and at second screening, 1.0 per 1000. First stage breast cancer was established in 71% of the patients whereas non-invasive carcinoma was found in 26% of the patients.

History, physical examination, mammography and thermography were used for detection and diagnosis in the foregoing studies. During the Leningrad Session, in late 1977, agreement was reached to use mammography for screening, in both countries, only on women older than 50 years if they are considered to be of high breast cancer risk.

In Topic 2--"Methods of Rehabilitation of Breast Cancer Patients"--following preliminary studies and acceptance of a standard questionnaire for data collection, up to 300 breast cancer patients are being studied in each country. 100 are to be studied in cancer centers/institutes, 100 in medical university hospitals and 100 in general hospitals/polyclinics.

In Topic 3--"Efficacy (End Results) of Treatment of Breast Cancer"--an exchange of data had been completed on 200 cases of breast cancer--100 cases from each country. Of the American patients, 93% had treatment initiated within 1 month of diagnosis, compared to 16% of the USSR patients. For a substantial fraction of the Soviet patients, time of treatment since diagnosis was four months or longer.

The distribution with respect to histologic type was similar. What would appear to be differences are likely to be due to choice of code (adenocarcinoma NOS vs. duct adenocarcinoma) rather than differences in histologic type.

Ninety eight percent of the Soviet cases were solitary tumor compared with 85% for the Americans. Twenty one percent of the USSR cases were diagnoses of tumor of two centimeters or less compared with 40% in the American cases.

The post-surgical extent of disease distributions differed somewhat in that the USSR cases showed higher percentages in the localized and direct extension categories (regional nodes and direct extension plus regional nodes). The percentages of cases with regional node involvement were 29 and 33 percent, respectively for the USSR and USA samples.

Perhaps the most interesting of the data are the distributions with respect to the extent of surgery and adjuvant radiation treatment and chemotherapy. The largest majority of USSR cases were treated by modified radical mastectomy--87 percent vs. 55 percent in the USA. Some American cases showed simple mastectomy, lumpectomy and two no surgery while none of the USSR women received less extensive operations. Eighty-five percent of the Soviet patients received chemotherapy as an adjunct to surgery while only 14 percent were so treated in the USA cases. Only 8 percent of the Americans received radiation compared with 56 percent among the Soviets.

Topic 4--"The Role of Cancer Centers in Cancer Control and Community Education"--is directed towards:

1. Studies of different principles of cancer center organization as it relates to and influences cancer control programs.

2. Studies to determine the role of cancer centers in improving oncologic services to the population.

3. Evaluation of the role of cancer centers in collecting and analyzing statistical data to determine the efficacy of breast cancer treatment.

4. Determination of the effectiveness of cancer centers in the continuing education of physicians in the center and the outlying community.

Joint monographs are in the developing stage on "The Detection of Early Forms of Breast Cancer;" "Rehabilitation of Breast Cancer Patients;" "The Role of Cancer Centers in Personnel Training for the Management of Breast Cancer;" and, when all studies are completed, another monograph on "Cancer Control" will be devoted to all four topics.

To date, this cooperation, in general, is leading to a better understanding of methodologies for breast cancer screening and rehabilitation as well as the efficacy of the results of breast cancer treatment. The exchange of information and techniques for professional and public education may lead to certain changes in teaching approaches.

The activities, progress and, perhaps, deficiencies in the American-Soviet cooperative effort in cancer can be summarized in Figure 9. As indicated during a presentation to the President's Science Advisor, steps are being taken to improve the situation in the Cancer Immunology Problem Area. We anticipate that productivity in Cancer Epidemiology is on the rise in view of recent research activities being undertaken and those currently in planning stages. And, after a very slow start (1972-1975), improvements in the genetics area are on the positive side. Finally, in our view, the balance of benefit in activities during this period has continued to move away from the early "one-sidedness" in the direction of the USSR.

FIGURE 9

STATUS OF USA-USSR COOPERATION IN CANCER

PROBLEM AREA	OVERALL DEVELOPMENT	JOINT RESEARCH	SYMPOSIA	PRODUCTIVITY
CHEMOTHERAPY	POSITIVE [A]	PROGRESSIVE [□]	TRADITION [◇]	VERY GOOD
IMMUNOLOGY	FAIR	STATIC TO PROGRESSIVE	TRADITION	FAIR
VIROLOGY	POSITIVE	PROGRESSIVE	TRADITION	VERY GOOD
GENETICS	GOOD	ACTIVATED [O]	TRADITION	GOOD
EPIDEMIOLOGY	POSITIVE	ACTIVATED	TRADITION	FAIR
CONTROL & CENTERS	POSITIVE	PROGRESSIVE	TRADITION	VERY GOOD

[A] POSITIVE—MEETING MUTUALLY ACCEPTED OBJECTIVES
[□] PROGRESSIVE—JOINT RESEARCH ON-GOING & DATA BEING EXCHANGED
[◇] TRADITION—SYMPOSIA CUSTOMARY DURING ANNUAL MEETINGS

[O] SOVIET DELAYS IN IMPLEMENTATION OF JOINT RESEARCH PRIOR TO 1-1-76

INFORMAL EXCHANGE WITH THE PEOPLES REPUBLIC OF CHINA:

In September 1977, two senior NCI scientists were among the eleven Americans who were invited by the Committee on Scholarly Communication with the Peoples Republic of China, National Academy of Sciences, to visit various cancer research institutions and cancer hospitals in the Peoples Republic of China. During the three week visit, the American delegation had opportunities to discuss aspects of clinical treatment of various types of cancers, the epidemiology of cancer, and problems of basic research being supported in the cancer centers.

Reciprocally, a Chinese delegation of fifteen cancer specialists was hosted by the American Cancer Society in April 1978. The delegation was able to visit several American cancer centers, including a two-day visit to the National Cancer Institute. An extensive program on clinical and basic research in cancer was planned for the visitors among whom were radiologists, epidemiologists, clinicians and basic cancer specialists, representing leading Chinese centers in Peking, Shangahi, and other cities.

The meetings were very informal, paving the way for considerable discussion of science and possibilities for scientific cooperation in the future. Interim measures are being explored for informal exchanges of scientists.

COLLABORATIVE RESEARCH WITH VISITING FOREIGN NATIONALS:

The National Cancer Institute, during Fiscal Year 1978, hosted 155 visiting scientists representing 27 nations of the world. The majority of the visitors was comprised of young researchers who came for the purpose of acquiring advanced training and experience in cancer research while working in the laboratories of senior NCI investigators.

Currently, 18 foreign scientists are appointed as Experts, having obtained temporary senior positions for the conduct of independent research or for collaboration with senior NCI staff members on extant projects in their scientific speciality. Sixteen of the foreign scientists have temporary appointments as Guest Workers, receiving financial support from their home institutions, private or public foundations.

Table 6 shows the number of such visitors, their countries of origin and a geographic distribution of the scientific impact of this important means of international communication.

As in previous years, the NCI Visiting Scientist Program has provided opportunities for young foreign scientists, as well as established researchers, to engage in cancer research with their American colleagues and share in their scientific experience. These activities have been most effective in the sharing of scientific information and the transfer of technology between American and foreign scientists. The foreign scientists have been provided with unique opportunities for the development of a potential for sound

TABLE 6: SCIENTISTS FROM FOREIGN NATIONS VISITING THE NCI, FY 1978

COUNTRIES OF ORIGIN	VISITING SCIENTISTS	EXPERTS	GUEST WORKERS
Argentina	1	-	-
Australia	4	2	1
Belgium	4	1	1
Brazil	1	-	-
Bulgaria	-	-	1
Canada	1	2	-
China, Republic of (Taiwan)	4	-	-
Egypt	2	-	-
Finland	1	-	-
France	2	-	5
Germany, Fed. Rep. of	3	-	1
Greece	2	-	1
Hong Kong, B.C.	1	1	-
India	21	1	1
Ireland	1	-	-
Israel	6	-	-
Italy	14	-	-
Japan	24	3	2
Malysia	1	-	-
Mexico	1	-	-
Netherlands	2	-	-
Poland	1	-	-
Portugal	1	-	-
South Africa, Rep. of	1	-	-
Spain	1	1	1
Switzerland	3	-	-
United Kingdom	12	3	1
Alien Residents or Immigrants	40	4	1
TOTAL	155	18	16 = 189

research careers or to improve existing skills in the scientific method. When a foreign scientist has been directly involved in the programs of the NCI and has been exposed to the disciplines involved in individual and coordinated projects, he appears to benefit by being better equipped for solving problems within his competence as well as having greater appreciation for the expertise required to study the complexities of the cancer process. Close working contact between scientists of the NCI and those of foreign institutions will tend to improve and enhance technical and personal cooperation between individuals and groups.

INTERNATIONAL CONTRACTS AND GRANTS

During this fiscal year, the NCI awarded 92 contracts and 45 grants to principal scientists conducting basic and applied research in institutions of 20 nations of the world. Tables 7 through 10 show the distribution of contracts awarded by the NCI Divisions to institutions in foreign countries. The cancer program areas and the number of projects/contracts are given as well as the funding per cancer area and per country. Table 11 provides similar data on the number of grants awarded to foreign countries. The financial outlay of the NCI for these research activities is estimated to be $13,387,882 of fiscal year 1977 funds or approximately 1.5% of the NCI budget.

Each of the projects being supported in foreign countries is applicable and contributory to the goals of the NCI research thrusts. A profile of the NCI-supported international research and its emphasis is summarized in the following scientific disciplines.

Biochemistry and Immunochemistry
Cancer Biology
Carcinogenesis
Drug Development
Diagnosis
Epidemiology
Immunology
Organ Site Cancers
Treatment Research
Viral Oncology
Conference Grants
Information Service
Planning and Development

The latter three topic areas constitute support being provided for Cooperative Oncology Groups, and those International Organizations affiliated with the ICRDB Program.

In the Division of Cancer Biology and Diagnosis emphasis is placed on fundamental immunology and immunotherapy. Specifically, research activities are related, in general, to the immune response to tumors, tumor antigenicity, durg-modified antigens, immunopotentiators and cellular systems that might be established as biologic markers for a given cancer.

Research being conducted for the Division of Cancer Treatment relates, principally, to the characterization of anticancer agents; the search for potential anticancer agents from natural sources such as microbial; and the synthesis, screening and testing of compounds developed in foreign laboratories. Clinical trials are conducted on specific cancers such as tumors of the brain. Support is provided for a WHO regional center in Italy which coordinates clinical studies of melanoma as well as for lymphoma treatment in Uganda.

Foreign research activities in carcinogenesis, cell biology, epidemiology and virology-genetics are of relevance to the Division of Cancer Cause and Prevention. Respectively, importance is ascribed to enzyme-induced chemical carcinogens; N-nitroso compounds and the polycyclic hydrocarbons. Information is needed on the preservation of biochemical mutants, mammalian transport systems and tissue interacting factors. Morbidity surveys, case control studies, seroepidemiology, risk data and cancer incidence rates in countries other than the USA are essential. Knowledge is required on the induction of genetic aberrations and their possible relationship to cancer as well as the role of viruses as suspect or potential carcinogens.

This relationship with international institutions, organizations and their scientists certainly has been mutually advantageous because opportunities are provided for an extension of our understanding of the causes of cancer, its treatment and its control and/or prevention.

Certainly, the expertise of foreign researchers and the results of their investigations are contributory to the spectrum of NCI research and its goals to significantly reduce the incidence of human cancer.

TABLE 7: NCI CONTRACTS TO FOREIGN INSTITUTIONS, FY 1978

Division of Cancer Biology and Diagnosis:

Program Areas	No. of Contracts	Total Amounts
Immunology	23	$ 1,403,746
Cancer Biology	7	566,654
Breast Cancer	3	178,937
	33	$ 2,149,337

Distribution by Countries:

Countries	No. of Contracts	Total Amounts
Australia	3	$ 188,781
Austria	2	117,000
Finland	4	167,080
Israel	13	1,047,097
Italy	1	67,000
Netherlands	2	51,275
Sweden	4	235,000
United Kingdom	3	205,113
West Germany	1	70,991
	33	$ 2,149,337

TABLE 8: NCI CONTRACTS TO FOREIGN INSTITUTIONS, FY 1978

Division of Cancer Cause and Prevention:

Program Areas	No. of Contracts	Total Amounts
Carcinogenesis	20	$ 2,437,196
Epidemiology	7	865,569
Cancer Biology	1	83,000
Pharmacology	1	85,000
Immunology	1	49,500
Viral Oncology	4	785,270
	34	$ 4,305,535

Distribution by Countries:

Countries	No. of Contracts	Total Amounts
Canada	4	$ 441,016
Columbia	2	213,514
Israel	5	813,921
Italy	1	85,000
Japan	3	162,704
Netherlands	3	312,500
Norway	1	7,800
Sweden	2	392,000
United Kingdom	7	512,377
West Germany	1	108,120
International Agency (IARC)	5	1,256,583
	34	$ 4,305,535

TABLE 9: NCI CONTRACTS TO FOREIGN INSTITUTIONS, FY 1978

Division of Cancer Treatment:

Program Areas	No. of Contracts	Total Amounts
Drug Development	8	$ 945,187
Treatment Research	9	703,135
Drug Research	1	304,430
	18	$ 1,952,752

Distribution by Countries:

Countries	No. of Contracts	Total Amounts
Belgium	2	$ 260,760
Canada	2	298,742
Italy	6	729,246
Japan	2	199,000
Netherlands	1	73,151
Uganda	1	25,000
United Kingdom	4	366,853
	18	$ 1,952,752

TABLE 10: NCI CONTRACTS TO FOREIGN INSTITUTIONS, FY 1978

Office of the Director:

Program Areas	No. of Contracts	Total Amounts
Carcinogenesis	1	$ 150,000
Epidemiology	1	115,049
Information	4	973,997
Planning and Development	1	1,418,869
	7	$ 2,657,915

Distribution by Countries and Organizations:

Countries	No. of Contracts	Total Amounts
Japan	1	$ 150,000
United Kingdom	2	1,587,869
IARC (France)	2	265,049
UICC (Switzerland)	2	663,997
	7	$ 2,657,915

TABLE 11: NCI GRANTS TO FOREIGN INSTITUTIONS, FY 1978

Division of Cancer Research Resources and Centers:

Program Areas	No. of Grants	Total Amounts
Treatment Research	14	$ 809,741
Carcinogenesis	6	262,433
Conference Grants	2	131,162
Immunology	11	673,557
Cancer Biology	3	156,924
Drug Development	2	46,255
Diagnosis	1	15,401
Viral Oncology	4	154,715
Epidemiology	1	24,600
Pharmacology	1	47,555
	45	$ 2,322,343

Grants Distribution by Countries:

Countries	No. of Grants	Total Amounts
Australia	4	$ 164,395
Belgium	1	298,286
Canada	14	574,785
Denmark	1	39,400
Finland	1	38,000
France	1	50,000
Israel	8	387,058
Japan	1	45,204
Korea	1	11,005
South Africa	1	72,397
Sweden	2	230,358
United Kingdom	7	238,882
West Germany	2	73,411
UICC (Switzerland)	1	99,162
	45	$ 2,322,343

SUMMARY

The foregoing description of the international activities of the National Cancer Institute is indicative of the NCI impact on the effort against cancer by a seeming consortium of nations of the world. Reciprocally, those nations collaborating with the NCI in the "war on cancer" are making significant contributions to the mission of the NCI for the peoples of America. Advancing the thesis of international cooperation a bit further, the products of this research effort are being *applied* certainly toward the improvement of cancer care mechanisms or systems in those countries where the socioeconomic environment seems to preclude such advances through autonomous research endeavors. By continuing, and even expanding, its role in collaborative international research, the NCI will understand better the relationship between cancer patients of the world and the differing biologic, economic, sociologic and technologic conditions that impinge upon their immediate being. And, as each new piece of information is added to the bank of existing knowledge related to cancer disease-complex, milestones in its cure and prevention could be achieved at an accelerated pace. This becomes even more pragmatic when we consider that a disease is a biologic aberration--abnormal alterations in a cell, a molecule, an organ or an entire physiologic system. A *disease*, therefore, can be understood in scientific and objective terms. But, the changes in biologic processes that create the disease, cancer, are not fully understood. Thus, it is mandatory that the momentum continue in the international quest for scientific discoveries related to the origin of cancer. Eventually, early detection will be possible, more efficient controls and/or cures will be instituted and, ultimately, prevention may be possible as occurred in some of the pestilences of mankind in the past.

NATIONAL CANCER INSTITUTE

ANNUAL REPORT

July 1, 1977 to September 30, 1978

RESEARCH CONTRACTS BRANCH

General

Research contracting in FY 1978 is projected to be about 7% higher in total dollars than in FY 1977. This confirms a steady increase in dollars each FY, beginning with FY 1971.

The number of contracts also increased at a steady rate beginning with FY 1971 through FY 1975 but in FY 1976 the actual number of contracts declined from FY 1975 by approximately 6%. In FY 1977 the number of contracts increased from FY 1976 by approximately 7%.

Management of Workload and Manpower

An analysis of the detailed workload data for NCI shows that four of the five Divisions experienced a small increase in dollar volume. Some minor shifting of manpower resources was carried out in order to adjust to changing workload volumes. The ability of RCB to handle the substantial increase in workload since 1973 with only a token increase in personnel, is attributable to the use of multi-year contracts utilizing incremental funding, the heavy use of overtime, and more successful attempt at spreading the workload evenly among the four quarters of the fiscal year.

Frederick Cancer Research Center

The Frederick Cancer Research Center (FCRC) located in Frederick, MD is in its 6th year of operation and had evolved into an internationally recognized center of research excellence, as well as a valuable source of research resources for NCI and the National Cancer Program.

Litton Bionetics, Inc. (LBI) has been the prime contractor for FCRC since June 1972. During this past year, LBI was awarded a new five-year contract to operate FCRC through September 1982 at an estimated cost of $130,000,000. Additionally, costs for A&E and renovation have historically averaged over $3,500,000 annually. Also, basic utility services are provided through an Interagency Agreement with the U.S. Army, Fort Detrick, MD at a cost in excess of $3,000,000 per year.

The FCRC is doing work for and is supported by funds from the NCI Program Divisions of Cancer Cause and Prevention, Cancer Treatment, and Cancer Biology and Diagnosis; Office of the Director, NCI; NINCDS, NIAID: Office of the Director, NIH; and, the Food and Drug Administration.

The FCRC contract remains the only Government owned, Contractor-operated (GOCO) facility within DHEW. NCI continues ot utilize a cost-plus-award-fee/cost-plus-fixed-fee type of contractual agreement for this largest of DHEW resear contracts.

NCI has nearly completed a five year planning exercise designed to make optimum use of the FCRC facilities.

Current contractor personnes strength is approximately 850. Resident NIH personnel now total approximately 100.

Small Business

National Cancer Institute Small Business contracts negotiated in FY 1977 amounted to $18,726,163, representing 74 contracts (exclusive of 8(a) contracts). The level for FY 1978 is projected at $20,866,624 and 71 contracts. This reflects wide activity in small business contracting, with the largest amounts in contracting for the services for small business companies with capabilities in the breeding of animals for experimental purposes. Other contracts were in the fields of conference support and biomedical research resources, i.e., production of tissue cultures.

There were two Small Business set asides by NCI in FY 1977 and 1978. This modest level of activity for awards of this type is attributable to the highly complex and specialized bio-medical research and research support work under NCI contracts. Recent policy initiatives by the President, OFPP and DHEW are intended to stimulate greater attention to the Small Business Program. A just instituted NIH procedure mandates the screening of each project plan by the Small Business Specialist for its potential for small business set aside. Labor surplus area set asides and subcontracts to small business will also receive greater attention in the coming year owing partly to these new policy thrusts.

EEO Contract Compliance and the Small Business 8(a) Program

There were seven 8(a) Small Business contracts awarded during FY 1977 totaling $736,444. Thus far in FY 1978 there have been four 8(a) awards amounting to $388,507 and amended prior year awards to increase the dollars by $244,240. Before October 1, 1978 we anticipate making 3 more awards for slightly more than $250,000. Very soon the RCB expects to have the Small Business and 8(a) representatives review each project plan prior to its being advertised. We anticipate that this procedure will greatly enhance our attempts to increase the number of Samll Business and 8(a) firms doing business with NCI.

The Compliance Program conducted its third annual survey of NCI contractors. The results were similar to those of last year in that most of the contractors had been reviewed by a Federal EEO Compliance Agency. The office continued to obtain EEO clearances for all NCI contracts over 1 million dollars.

Contracts Management System

A study has resulted in a plan to improve the quality of the CMS data. It will be expanded to satisfy certain financial management requirements.

ANNUAL REPORT
RESEARCH CONTRACTS AWARDED NCI
BY DOLLARS AND NUMBERS

(Dollars in Thousands)
(Years are Fiscal Years)

	1971	1972	1973	1974	1975	1976	TQ	1977	1978*
Div. of Cancer Cause & Prevention									
Office of Dir.	---	---	$ 615	$ 3,223	$ 7,528	$ 11,475	$ 2,697	$ 10,626	$ 16,669
(Numbers)	---	---	(1)	(13)	(26)	(38)	(13)	(38)	(---)
Carcinogenesis	$ 10,573	$ 23,214	27,547	29,649	39,827	37,868	5,698	44,482	56,123
(Numbers)	(71)	(125)	(122)	(169)	(156)	(127)	(31)	(173)	(---)
Virus	31,411	42,659	43,517	49,537	52,631	49,135	9,611	42,192	41,971
(Numbers)	(117)	(130)	(121)	(193)	(139)	(124)	(9)	(138)	(---)
Field Studies	4,412	5,269	6,891	6,830	5,915	7,885	2,284	11,206	14,829
(Numbers)	(51)	(50)	(56)	(52)	(68)	(47)	(2)	(59)	(---)
Task Forces	---	---	---	---	---	4,772	805	5,082	5,834
(Numbers)	---	---	---	---	---	(20)	(4)	(23)	(---)
Sub-Total	$ 46,396	$ 71,132	$ 78,570	$ 92,922**	$105,901	$111,135	$ 21,095	$113,588	$135,426
(Numbers)	(239)	(305)	(300)	(427)	(389)	(356)	(59)	(431)	(---)
Div. of Cancer Treatment	$ 24,235	$ 40,292	$ 42,255	$ 57,384	$ 62,450	$ 68,870	$ 10,730	$ 67,465	$ 67,503
(Numbers)	(165)	(202)	(227)	(277)	(288)	(261)	(24)	(283)	(---)
Task Forces	---	---	---	700	682	---	---	1,083	961
(Numbers)	---	---	---	---	---	---	---	(8)	(---)
Sub-Total	$ 24,235	$ 40,292	$ 42,255	$ 58,084	$ 63,132	$ 68,870	$ 10,730	$ 68,548	$ 68,464
(Numbers)	(165)	(202)	(227)	(277)	(288)	(261)	(24)	(291)	(---)
Div. of Cancer Bio. & Diag.	$ 4,354	$ 9,609	$ 11,717	$ 17,613	$ 25,397	$ 27,042	$ 3,677	$ 28,203	$ 27,185
(Numbers)	(40)	(74)	(114)	(265)	(307)	(235)	(8)	(244)	(---)
Task Forces	---	---	---	7,881	5,323	8,534	1,527	10,355	11,409
(Numbers)	---	---	---	---	---	(73)	(2)	(74)	(---)
Sub-Total	$ 4,354	$ 9,609	$ 11,717	$ 25,494	$ 30,720	$ 35,576	$ 5,204	$ 38,558	$ 38,594
(Numbers)	(40)	(74)	(114)	(265)	(307)	(308)	(10)	(318)	(---)

(Dollars in Thousands)
(Years are Fiscal Years)

	1971	1972	1973	1974	1975	1976	TQ	1977	1978*
Div. of Cancer Control & Rehab.	---	---	$ 3,800	$ 26,912	$ 48,134	$ 60,456	$ 13,888	$ 61,484	$ 65,849
(Numbers)	---	---	(30)	(135)	(199)	(248)	(26)	(231)	(---)
Major Construction and Other	$ 3,000	$ 4,999	$ 8,000	$ 9,288	$ 24,249	$ 702	---	$ 2,810	$ 572
(Numbers)	(1)	(7)	(6)	(19)	(60)	---	---	(1)	(---)
TOTALS	$ 77,985	$126,032	$144,342	$212,700***	$272,136	$276,739	$ 50,917	$284,988	$308,905
(Numbers)	(445)	(588)	(677)	(1123)	(1243)	(1173)	(119)	(1272)	(---)

* Data for 1978 estimated contract numbers cannot be estimated.
** This amount was previously reported. $89,239 is the correct amount
*** This amount was previously reported. $209,017 is the correct amount.

Note. This report for FY 1976 and the TQ period does not include active contracts funded from a prior fiscal year.

ANNUAL REPORT
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS (OADPPA)
NATIONAL CANCER INSTITUTE
OCTOBER 1, 1977 - SEPTEMBER 30, 1978

OFFICE OF THE ASSOCIATE DIRECTOR

The OADPPA provides leadership, consultation and direct participation in program analysis, program planning, and management information systems. Organizationally, it is located in the Office of the Director, NCI, to enable it to more effectively provide its services to all operating units of the NCI and, at the discretion of the Director, to non-Federal organizations participating in the National Cancer Program (NCP). Operationally, it carries out its responsibilities in close collaboration with NCI operating units, and other offices in the Office of the Director.

The Office consists of two branches: The Program Analysis and Formulation Branch (PAFB) and the Systems Planning Branch (SPB) which includes the MIS project office. The PAFB is staffed with M.D.'s and Ph.D.'s with broad laboratory and clinical research experiences in the major disciplines involved in cancer research. The SPB is staffed with professionals with extensive experience in general management, planning, operations research, systems analysis, and management and technical information systems. Although primary and continuing assignments are made to each branch based on expertise required, the Office typically operates on a project matrix system whereby members of both branches are assigned to specific projects to provide the mix of scientific and managerial talents required by much of the work performed by the Office. Thus, this annual report describes activities and accomplishments in terms of the three major areas of performance (Planning, Analysis and Formulation, Management Information Systems) rather than an accounting by branches.

ANALYSIS AND FORMULATION

Position papers, guidelines, and procedures are developed for the review and analysis of current programs and the implementation of new programs. Analytic services are provided in response to the specified needs of different NCI operating units. During the past year, the principal scientific analysis activity has been concerned with a detailed individual analysis of over 6000 current research projects (contracts and grants) supported by the NCI and their relation to the recommendations of the National Cancer Program Plan.

A. Under contract, the TRW Systems Group has completed a computerized data base of scientific information concerning the National Cancer Program research recommendations and FY '77 NCI-supported research grants and contracts. Computer programs have been developed to interrogate these data bases to allow analysis of the science content of projects and their association with research reccomendations of the NCPP.

B. A report has been prepared which describes the system of analysis, its capacities and limitations, with examples from the FY'75 analysis.

C. A report of the analysis of FY '77 grant-and contract-supported research is in progress.

D. Reports on specialized areas of research, e.g., virology, immunology, diagnosis, treatment, gastrointestinal cancer, bladder cancer are available upon request.

E. Under contract, Dr. Judith Swazey, Boston University, has completed a series of essays on contributions of categorical biomedical research to basic science knowledge. It is anticipated that the book will be published and available by the end of 1978.

PLANNING

Since its creation in 1965, the OADPPA has been primarily responsible for the development and application of systems planning techniques to cancer research and more recently to cancer control activities; providing direct support for National Cancer Program planning, department level planning, and individual program planning. The Office also provides general planning consultation services to various program areas within the National Cancer Institute and other institutions and groups participating in the National Cancer Program. In carrying out these responsibilities, staff participates as members of planning teams organized to develop individual program plans; works directly with program and administrative personnel in the development of operational plans; maintains liaison with program personnel; provides periodic consultation and direct efforts, as requested by program leaders, to revise and update both program and operating plans; provides education and training to program staff in the use of systems techniques; works closely with the financial management staff during the budget preparation cycle to correlate budget preparation with existing plans.

Specific planning activities engaged in during the past year are described in the paragraphs that follow:

A. Coordinated the preparation of the annual five-year National Cancer Plan for the five-year period FY '79 through FY '83 for submission to the President as required by law.

B. Further developed and extended a computerized tool to project and display in a variety of formats NCI funding levels according to program, organization, and traditional budget categories. This capability is utilized to arrive at the five-year projections for NCI Annual Plans.

C. Work continued on the development of the program catalog, the abstracts of scientific recommendations, and strategic planning efforts.

D. As the focal point for the preparation of NCI material required

for Department level planning, the Office coordinated the NCI/DHEW Forward Planning activities and the NCI Evaluation Planning effort.

E. Staff has worked closely with the NCI Financial Management Office throughout the year participating in the preparation of budget guidance documents, assisting with the implementation of program structure in the budget process, with the development of narratives for budget documents, congressional hearings testimony, and responses to inquiries related to program expenditures and priorities. Assistance has also been provided in adapting the automated fiscal projection model, used in developing five-year projections, to aid in budget formulation.

F. A contract with the American Association of Cancer Institutes (AACI) to develop cooperative action and common practice among cancer institutes was completed.

G. Breast Cancer Program - Division of Cancer Biology and Diagnosis

The Office provided support to the Breast Cancer Task Force on an as-needed basis. A staff member served on the task force steering committee and participated in program reviews and project relevance reviews.

H. For the Prostate Cancer Project, assistance is provided to the project office as Roswell Park Memorial Hospital in preparing updated program planning charts for use in program relevance review and progress monitoring.

I. National Bladder Cancer Project

The Bladder Cancer Project is currently engaged in a major program progress review after four years of operation. A review of the current state of disease management and relevant research in bladder cancer has been completed and development of a plan for continued activities of the Bladder Cancer Project is in progress. The Office is providing analytic assistance in developing a description of the natural history of the disease to determine risk factors, alternative intervention opportunities and relevance criteria and priorities. The staff is also providing planning assistance in developing a plan for future bladder project activities.

J. Provided assistance to the Division of Cancer Control and Rehabilitation, Community-Based Cancer Control Program in developing planning and evaluation concepts and approaches.

K. During the past year the Office provided planning and analysis support to the Division of Cancer Treatment. This included assistance with the preparation of several working documents and planning assistance on the Drug Development program.

Continued support was provided to the Committee for Radiation Oncology Studies (CROS) in the development and preparation of the research plans for radiation oncology.

L. Provided direct support to the analysis of NCI's Nutrition Program with particular emphasis on responding to Congressional inquiries.

M. The Director, NCI, established twelve Program Working Groups to faster coordination of programs within the NCI. OPPA Staff are serving as Executive Secretaries on five of the groups.

MANAGEMENT INFORMATION SYSTEM (MIS)

The National Cancer Institute's MIS is designed to meet the needs of the Office of the Director, NCI, for summary, exception, and trend reporting, and the more specific information requirements of the operating divisions. The work is performed by the MIS Project Office OPPA, in conjunction with the NCI operating divisions. The NCP/MIS Catalog of Services, originally issued in 1975, has been updated and reissued.

The development of improved methods for providing information involves: maximizing utilization of existing NIH and NCI systems; synthesizing information on program, funding and administration to provide an overview of NCI activities; and building individual systems that provide immediate products and services to NCI staff at all levels as modular units of an evolving MIS.

The components developed to date support the Financial Management Branch, Research Contracts Branch, and some of the Divisions via the Divisional Information Systems (DIS). The DIS in the Division of Cancer Cause and Prevention has been modified to reflect organizational changes with special emphasis being given to the area of Environmental Carcinogenesis both in terms of administrative management and in terms of integrating program data on compounds under bioassay.

During the past year, the primary focus of activity has been on support of financial and administrative areas; this will continue for at least an additional year. Major advances have been made in linking the NCI financial system with those of NIH. It is anticipated that this utilization of central systems will be most fruitful during the coming year in providing detailed budget-oriented reports to the operating divisions and summary budget reports to the Office of the Director's staff.

Staff has continued to work closely with other components of the NIH, and coordination with NINCDS has been especially beneficial. Staff is assisted by two contractors (TRW Systems Group and METREK Division of MITRE). Significant accomplishments of both are reported in the contract narratives.

During the past year, staff devoted considerable time to support of various OD Branches and to several divisions. While the specifics are too numerous for inclusion here, several significant examples are cited:

- For the Personnel Management Branch, the Project Office made a number of improvements to the software and documented data entry procedures. The Project Office provides full technical support for this system.
- For OIA, the Scheduling and Tracking Capability developed for the DCCP Division Information Systems was installed in OIA.
- For the Financial Management Branch, the initial contract-related reports in the Financial Planning Subsystem were developed and the design effort initiated for the Obligations and Outlays Subsystem.
- For DCT, a more flexible version of the Financial Data Reporting Subsystem was provided.
- For the Administrative Services Branch, an OD version of the DCT Financial Data Reporting Subsystem was developed and installed, and procedures and programs were prepared to support generation of the NIH Travel Study Report.
- For DCBD, the NIH Travel Study Report Subsystem and the Financial Data Reporting Subsystem were expanded.
- For the Research Contracts Branch, developed and started implementation of high priority improvements in the CMS.

For all MIS subsystems, the Office assists in maintaining the proper interfaces between all subsystems and between MIS subsystems and those outside NCI, especially DFM. Much of this activity is facilitated through use of configuration management procedures. Directly related to this is the continuing effort to make all capabilities available to all potential users which both helps to maintain system compatibility and reduce duplicate efforts.

PRESENTATIONS AND PUBLICATIONS

A. The Office has participated in or provided presentations on the activities sponsored by this office to a number of groups within the NIH during the past year.

B. 1978 National Cancer Program Annual Plan for FY 1980-84.

C. Murray, B. et al. A Computer-Based Medication System for Cancer Chemotherapy Patients. In *Sourcebook of Computers in Pharmacy*. American Society of Hospital Pharmacists, 1978.

D. Tong, C., Stonehill, E.H., Higgins, P.J. and Bendich, A.: A Fetal Antigen in a Mouse Fibrosarcoma with Possible Cross-reactivity with an Adult Mouse Skin Component. European Journal of Cancer, 14: 147-152, 1978.

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI

FY 1977

CONTRACTOR: JRB Associates (Contract #NIH-NO1-CO-75390)

TITLE: Planning and Support Services for the National Cancer Program

CONTRACTOR'S PROJECT DIRECTOR: Mr. Frank Wells

PROJECT OFFICER: Barbara R. Murray

OBJECTIVE: Provide the support services necessary to assist the Office of the Director, NCI in meeting the expanded responsibilities established by the National Cancer Act of 1971.

MAJOR ACCOMPLISHEMENTS: Provides planning support services for national and individual program planning activities.

Assists in the preparation of briefing and presentation materials.

Aids in the preparation of draft documents required to develop the National Cancer Program Plan.

Provides administrative and logistical support to the Office of the Director for planning conferences and meetings.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The expanded scope and responsibilities of the National Cancer Program have imposed additional requirements for reporting, planning and analyzing alternative courses of action. This contract provides assistance in areas which could not be done in NCI.

PROPOSED COURSE: This effort has been recompeted and is being continued under a new contract.

DATE CONTRACT INITIATED: September 30, 1977.

CURRENT CONTRACT LEVEL: $3,403,104

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI

FY 1978

CONTRACTOR: Boston University Medical Center (Contract #NIH-N01-CO-55315)

TITLE: A Study of the Contributions of Categorical Research to Basic Science Research and Knowledge

CONTRACTOR'S PROJECT DIRECTOR: Dr. Judith Swazey

PROJECT OFFICER: Dr. Abraham Cantarow

MAJOR ACCOMPLISHMENTS: Study was completed, reviewed by outside consultants, and will be printed and distributed by end of 1978.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: It is anticipated that this document will provide information to counter certain statements made in opposition to the concentration of effort on the control of a particular disease, cancer. It is claimed that this is at the expense of support of basic research, upon which progress toward control of disease must ultimately depend.

PROPOSED COURSE: Contract completed.

DATE CONTRACT INITIATED: June 30, 1975.

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI

FY 1978

CONTRACTOR: TRW Systems Group, Inc. (Contract #N01-CO-55420)

TITLE: National Cancer Program Analysis System

CONTRACTOR'S PROJECT DIRECTOR: Mr. Don Moen

PROJECT OFFICER: Dr. Abraham Cantarow

OBJECTIVE: To design and develop a methodology for analysis of the National Cancer Program Plan (NCPP) and of the NCI supported biomedical research activities. To provide specified reports of the analysis, plus an ad hoc query capability.

MAJOR ACCOMPLISHMENTS: The analytical methodology was translated into a computer system. The system was programmed to run on the DCRT installation. From information provided by PAFB/OPPA, a data base was created for the NCPP and for NCI grants and contracts.

The system was run to provide the specified reports for the NCI staff, and a number of ad hoc queries were processed.

The system design, program and operation were fully documented.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The analytical products will provide NCI with an objective measure of the coverage of the NCPP by NCI funded activities. The Plan and Program activities can then be brought into consonance. Specific questions about the NCPP anbd NCI activities can be answered from the data base.

PROPOSED COURSE: To up-date the information content based on recommended changes to the NCPP, and on new contracts and grants. To continue to enhance the system's analytical capability.

DATE CONTRACT INITIATED: July 1975

CURRENT CONTRACT LEVEL: $128,500

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR PROGRAM PLANNING AND ANALYSIS, NCI

FY 1978

CONTRACTOR: METREK Division of the MITRE Corporation (Contract #N01-CO-55421)

TITLE: Technical Support of the Systems Planning Branch, PPA/NCI/OD and the NCP/MIS

CONTRACTOR'S PROJECT DIRECTOR: M. Roger Duncan

PROJECT OFFICER: Barbara R. Murray

OBJECTIVE: To furnish technical information systems support services to the Office of the Director, NCI, primarily in the area of an improved Business Management System for the NCI.

MAJOR ACCOMPLISHMENTS: The contractor has prepared alternative scenarios for implementation of NCI Business Management Systems. These optional approaches have aided NCI management in the selection of an optimum development process.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The National Cancer Act of 1971 provides for enhanced information systems throughout the Cancer Research Community. This contract provides the needed technical evaluation support.

PROPOSED COURSE: This contract will operate at a reduced level of effort during year two and expire March 31, 1979. During the remainder of the contract emphasis will be on analysis of data element priorities for OD reporting.

DATE CONTRACT INITIATED: April 1, 1977

CURRENT CONTRACT LEVEL: $160,000

CONTRACT NARRATIVE
OFFICE OF THE ASSOCIATE DIRECTOR FOR
PROGRAM PLANNING AND ANALYSIS, NCI

FY 1978

CONTRACTOR: TRW Systems Group, Inc. (Contract #N01-CO-55420)

TITLE: Phase II Development of an NCP/NCI Management Information System

CONTRACTOR'S PROJECT DIRECTOR: Mrs. Ruth Powers

PROJECT OFFICER: Mrs. Betty Ann Sullivan

OBJECTIVES: To provide analysis, design, and programming services to the NCP/MIS Project Office. To develop subsystems, including all standard documentation, and to provide operational and training support, where appropriate, to subsystem users.

MAJOR ACCOMPLISHMENTS: TRW developed a Financial Data Reporting Subsystem for DCT and installed the same subsystem with modified reporting capabilities in OD and DCBD. This system provides administrative staff with monthly obligations for specified categories of in-house costs. Software to prepare the NIH Travel Study Reports were provided to OD, DCCP, DCBD, and DCRRC. TRW provided programming support to the MIS Project Office for the initial contract-related reports in the Financial Planning Subsystem. Several changes were implemented in an experimental version of the Personal Services Forecasting Subsystem in an effort to refine the forecasting techniques. Two subcontractors were participants during the present contract period. The University of Pennsylvania carried out independent reviews of the documentation of the Contracts Management System and the Budget and Presentation Support System of the Fiscal Projection Model. Commercially available systems to provide storage and queries for document references were evaluated for OCC. JRB Associates conducted briefings and training sessions for DCCP users, refine user documentation, and stablized and baselined the Divisional Informational Systems so that these systems could be turned over to the operating units or to a support contractor. Budget and Obligation Planning Reports and modifications to the Scheduling and Tracking Capability were added to the systems and included in the baseline.

SIGNIFICANCE TO THE NATIONAL CANCER PROGRAM: The National Cancer Act of 1971 provides for improved information systems. This contract gives NCI the analysis and programming support required to implement its Management Information System.

PROPOSED COURSE: This contract will expire June 29, 1979. A project plan for a support contract at a lower level is being prepared.

DATE CONTRACT INITIATED: June 30, 1975.

CURRENT CONTRACT LEVEL: $560,000

OFFICE OF CANCER COMMUNICATIONS

OFFICE OF THE DIRECTOR

NATIONAL CANCER INSTITUTE

PROGRAM ACTIVITIES REPORT, OCTOBER 1, 1977--SEPTEMBER 30, 1978

The National Cancer Act Amendments of 1974 require that the "Director of the National Cancer Institute shall provide and contract for a program to disseminate and interpret on a current basis for practitioners and other health professionals, scientists and the general public, scientific and other information respecting cause, prevention, diagnosis and treatment of cancer".

A. NCI disseminates information in three categories:

1. Scientific information used and produced by investigators
2. State of the art information for use of health professionals and the public
3. Administrative and program information used by NCI and other organizations within the National Cancer Program.

B. The Office of Cancer Communications (OCC) is a major source of information for the public (including cancer patients and people at risk to developing cancer) and a substantial source for health professionals. It carries out traditional communications support activities for NCI. Within the National Cancer Program it assumes the role of coordinator of cancer communications, and develops new initiatives to help meet responsibilities stemming from the Act, to provide the public and health professionals with useful information about cancer.

OCC's traditional activities include responding annually to about 2,500 press inquiries; preparing news releases, press summaries announcements, and background statements for use by the press; and operating press rooms at major NCI supported scientific meetings. The OCC develops reports and publications, e.g., Congressional testimony; reports required by law; special reports for the byline of NCI's Director; and a wide variety of publications for public and professional audiences.

The OCC develops exhibits aimed primarily at health professionals and scientists. They are used at about 25 scientific and professional meetings each year, and provide audiences with information on cancer and how to tap resources available through NCI and other organizations.

The office also responds to public inquiries: those requiring both customized and non-customized responses; controlled and Congressional inquiries; distributes publications, and replies to inquiries by regular telephone and to a special toll-free number. It provides backup service to 16 regional Cancer Information Services (toll-free inquiry systems) and which received last year more than 100,000 calls. Seventy-five percent of these inquiries are from patients, or their relatives or friends. A Speakers Bureau is operated nationally by OCC, with 300 registered speakers, and handling all cancer topics for all possible audiences.

OCC maintains awareness of communications activities of all participants of the National Cancer Program, assuring that there is a minimum of unneeded duplication, and identifying and filling gaps in communications programming.

The OCC operates a national Cancer Information Clearinghouse, maintaining awareness of cancer-related informational and educational materials and services, produced or used by the cancer community; responding to requests for information about available informational and educational materials and services; promoting the use of existing informational and educational materials and services; and identifying areas where needed materials and services do not exist.

OCC's approach to communications is to reach out to target audiences through intermediary groups which have best access to the chosen audiences. The types of intermediary organizations with which OCC is involved are: cancer related (cancer centers, cancer societies); non-cancer related (fraternal organizations, medical societies, community groups, etc.); and the mass media. Among the organized dissemination projects under way are: 1.) smoking information, to help smokers quit, use health professionals as exemplars and to steer smokers to quitting resources, and emphasize non-smoking in schools; 2.) breast cancer information, communicating progress being made against breast cancer and relating that individuals can take advantage of progress through knowledge (most lumps are non-malignant) and behavior (practice breast self-examination). Organized dissemination projects planned are: 1.) coping with cancer (physically and psycho-socially). The special targets are cancer patients, their families, and health professionals; 2.) the area of environmental carcinogens, possible directed at occupational cancer hazards. Other areas of special emphasis are: 1.) pretesting and evaluation of all communications projects; 2.) communication with minority audiences; 3.) an internship program for graduate students in journalism, communications, etc.; and 4.) support for 16 Cancer Information Service offices operated by Comprehensive Cancer Centers.

Late in the fiscal year, as part of an HEW initiative, the OCC conducted an "Asbestos Awareness Program," a public campaign designed to make available to as many Americans as possible information about the asbestos problem. In the course of this campaign:

> The Government is mailing out 35 to 39 million asbestos warnings with an offer of free publications to Social Security check recipients and retirees of the Army, Navy, Coast Guard, Air Force and Civil Service.

National distribution of public service radio and television spots is being made.

Small public service advertisements are being mailed to every newspaper in the United States.

A concerted effort is being made to get magazines to run stories about asbestos.

Over a million asbestos publications are being distributed in 4,000 supermarkets over the Nation.

Because no precisely similar campaign has been conducted by the NCI before, firm estimates of public response are difficult to make. A one percent response to the retiree mailing, which would be low, would mean 350,000 to 400,000 responses. Radio and television spots and magazine/newspaper advertising may generate 50,000 to 100,000 additional inquiries per month for several months. About half of these inquiries are expected to be answered by the local Cancer Information Service network.

The Office of Cancer Communications, under the leadership of Mr. J. Paul Van Nevel, Associate Director for Cancer Communications, OD, underwent a reorganization during the year:

1. The Education and Technical Reports Branch is now called the Reports and Inquiries Branch, and the Research and Program Reports Section is now called the Reports Section. Together with the Public Inquiries Section these components now constitute the Branch, the Chief of which is Mr. William S. Gray.

2. The Program Liaison Branch was abolished, and the Information Resources Branch and the Information Projects Branch were created. Within the Information Resources Branch are two new sections, Graphics and Audiovisuals Section and the Document Reference Section.

3. Staff members of the new Information Projects Branch are Elaine Bratic, Robert Denniston, Barbara Blumberg Turner, Bernard Ellis, Dorothy Kipnis, and Mari Harrison.

4. Staff members of the new Information Resources Branch are Joseph Bangiolo and Celina Carroll. In the Graphics and Audiovisuals Section are Pauline Wall, Margaret Layton, Carolann Hooton, Bertie Swann, and Mimsie Kennedy. In the Document Reference Section are Paul Feinstein and Joyce Williams.

5. Two new branch chief positions (in Information Projects Branch and Information Resources Branch) and two new section head positions (Graphics and Audiovisuals Section and Document Reference Section) have been created and are being filled through the

usual competitive process. Until this process is complete, Elaine Bratic is serving as Acting Chief of the Information Projects Branch. J. Paul Van Nevel serves as Acting Chief of the Information Resources Branch. Pauline Wall serves as Acting Head of the Graphics and Audiovisuals Section. Joseph Bangiolo serves as Acting Head of the Document Reference Section.

COMMUNICATIONS INTERNSHIP

During 1977, OCC sponsored several interns for a six-month working experience in health communication. Ms. Vivian Segal, Stanford University, had been assigned to work in the Program Liaison Branch and later in the NCI Office of Legislative Analysis. Ms. Carla Carlson, South Dakota State University, interned as a Science Writer in the Reports Section. Ms. Bonnie Lau, University of Hawaii, served in the Public Inquiries Section as an Information Specialist. Ms. Rebecca Stepto, Marshall University, worked with the Graphics and Audio Visual Section and a publications specialist and editor of the NCP Review for Communicators. Ms. Rose Mary Romano, New York University, spent her internship in the Information Projects Branch as a Health Education Specialist. Patsy Russell, University of Tennessee, came to NCI as a short-term field placement in health education.

Beginning in July, six other communications interns joined NCI for six months. These interns are assigned to health education, communications, and information science work with NCI staff. Sara Brodsky, an intern in the Information Projects Branch, brings to OCC a combined health education and writing background. Ms. Brodsky is completing a master of public health degree at the University of Illinois Medical Center School of Public Health in Chicago, Kathleen A. Conaboy, interning with the Public Inquiries Section of OCC, graduated from Villanova University in 1973 with a B.A. in Philosophy, and is currently a graduate student at the University of Nevada-Reno. Beth Henning is working in the program of the International Cancer Research Data Bank (ICRDB). She is pursuing study leading to the A.M. in Library Science at the University of Chicago, with an emphasis on computer applications in medical libraries. Jeff McKenna, assigned to the Reports Section of OCC, is a graduate student in Journalism at the University of Tennessee, Knoxville, where he expects to receive his M.S. degree in Spring 1979. Vickie Pasley, working with NCI's newly formed legislative analysis office, is a graduate student in family and community medicine at the University of Missouri-Columbia. Channing Wheeler, assigned to the Public Inquiries Section of the OCC, is a graduate student (M.A.) at the Institute of Communications Research at Stanford University studying persuasive campaigns in health.

INFORMATION RESOURCES BRANCH

Information resources are collections of organized documents, reports, working papers and allied data and materials. The newly formed Information

Resources Branch includes two sections: Document Reference Section and Graphics/Audio Visual Section. These units are responsible, as resources and service operations, for information support to NCI staff.

The Branch is responsible for maintaining an inventory of NCI meetings, symposia, reports, and publications; maintaining automated information systems including the Document Reference System and Cancer Information Clearinghouse for the collection, indexing, and retrieval of a wide variety of administrative and program information; providing speakers for NCI on request and supporting them with speech materials and logistics; providing for printing, graphics, and audiovisual services; managing the printing and distribution of NCI Special Communications; providing guidance on Freedom of Information and Privacy Act issues and serving as the Institute focal point for responding to requests made under those statutes; clearing all manuscripts except those for publication in scientific journals and certain other written and verbal presentations; and managing the Fourth Wednesday Forum, tours, open houses, and other special events.

Graphics and Audiovisuals Section

Approximately 500 requests under the Freedom of Information Act were received and processed during the year.

NCI's Special Communication is another service that allows NCP information to be rapidly, as well as accurately, disseminated. The Special Communication can be sent selectively to up to 4,000 groups and individuals based on the specialized nature of the information or more general discussions of new programs or research advances. During 1978, over 450,000 health professionals and persons in allied professions were reached via 20 Special Communications.

Over 4 million publications were distributed for NCI by Supermarket Communication Systems, Inc., in bulletin board distribution facilities located in 4,700 supermarkets and discount stores throughout the U.S. The Consumer Information Distribution Center in Pueblo, Colorado, distributed approximately 300,000 copies of English and Spanish NCI publications.

OCC prepared an exhibit on breast cancer as part of the HEW 25th anniversary ceremonies held at the Hubert H. Humphrey Building in May. Three new table-top exhibits were prepared to supplement existing large exhibits. Exhibits were shown at 25 professional meetings.

Slides were produced on the NCI and NCP for use by the professional staff. A 30-second public service spot announcement was prepared to call attention to the availability of cancer information and/or publications available from Cancer Information Services and/or Supermarket bulletin boards.

The 85 TV stations airing the spot covered an estimated 30 million households.

The NCI films, "Progress Against Cancer" and "Research to Prevent Cancer" continue to be in demand. There were approximately 20,000 bookings with an audience of 20 million and 500 TV showings with an audience of 10 million. This year 53 cable TV networks aired our films.

Over 200 nonresearch materials including publications, audiovisuals and speeches were processed for official clearance. Assistance was provided to all NCI offices in obtaining printing and audiovisual services.

Tours and cancer programs requested by outside groups such as the Candlelighters and science students were arranged at the rate of approximately one per month.

A daily newspaper clipping service of items of NCI interest was provided to the professional staff and CIS offices.

INFORMATION PROJECTS BRANCH

The major project areas for the Information Projects Branch include:

Smoking Prevention/Cessation
Psychosocial Aspects of Breast Cancer
Coping with Cancer
Minority and Hard-To-Reach Audiences

Other areas currently being developed include:

Level of cancer awareness among (non-science) media professionals
Current media coverage of cancer
CIS national publicity and promotion
Methods and value of pretesting program materials
Promotion of health message testing service for health planners
Catalogue of possible intermediary groups
Needs for baseline information regarding current public/patient cancer awareness, attitudes and knowledge

Smoking Education Programs

The objective of the smoking information and education effort is to reduce the proportion of Americans who smoke cigarettes by encouraging cessation among smokers and motivating those who do not smoke not to start. Project materials are geared to the health professional to encourage smokers to quit and also to develop program initiatives in curbing the rate of smoking.

Program areas include: 1.) marketing The Smoking Digest which summarizes what is known about smokers and smoking programs. More than 30,000 copies have been distributed to date. A formal evaluation will be undertaken within the next six months; 2.) summary of policies, curricula and counseling programs related to smoking in primary and secondary schools. The school smoking summary, which is an extension of The Smoking Digest, provides the most up-to-date information on smoking education programs, school policies on smoking regulations, and sources of information on model programs. It will be distributed to educators, health professionals, and concerned parents; 3.) an audio-visual presentation for family physicians in the community (prepared jointly with the American Academy of Family Physicians (AAFP) and the American Lung Association) which essentially is designed to dispel the myth that efforts to curtail smoking have been fruitless and also to stimulate new community activities related to smoking programs. The American Lung Association, with the help of a promotion kit provided by AAFP, will schedule participating physicians and help publicize the presentation; 4.) a physician/patient Stop Smoking Kit which is designed to encourage more physicians to: address the subject of smoking with their patients; counsel smokers more effectively; and provide smokers with materials which will help them quit. The materials being developed for this program include: waiting room posters, physician guidelines, a memo to nurses, a self test for smokers ; "Why Do You Smoke," a booklet on approaches to quitting - "Calling It Quits" and an article "What Happens After You Quit;" 5.) a special booklet for nurses on approaches to quitting and a pilot special cessation clinic for nurses; 6.) an information program to alert pharmacists and physicians about the relationships between smoking and drugs. This information includes special reports in professional journals, direct mail information and public service announcements.

Breast Cancer Information Program

The objective of the breast cancer effort is to heighten public awareness and understanding of the overall progress against breast cancer in order to change attitudes and predispositions about the disease and increase detection practices. The primary target audience is asymptomatic and undiagnosed adult femals age 18 and over. Secondary audiences include women at above-average risk of developing breast cancer, adult males and teenage females.

This years project activities include the production of new breast cancer information program materials: 1.) The Breast Cancer Digest, A Guide to Medical Care, Emotional Support and Educational Programs is a handbook for health planners organizing a breast cancer education program at local levels. It provides extensive background information on the medical, emotional, financial and educational aspects of breast cancer, as well as a list of resources which can be utilized by program planners, breast cancer patients and their families; 2.) the slide tape presentation, "Progress Against Breast Cancer," carries the logo of NCI and is tailor made for group presentations. This piece, which is promoted to intermediary groups for approximately $20.00, is the focal piece for the information program; 3.) a pamphlet, "Progress Against Breast Cancer, What You Can Do About It," accompanies the slide tape presentation and highlights the information in the presentation; 4.) the poster, "Americans Are Living With Breast Cancer," carries the NCI logo and also accompanies the presentation; 5.) three articles, which describe the elements of progress against breast cancer and reinforces the message of the materials, are designed for organizations or groups to use in their publications to promote the program.

In promoting this package of materials the following intermediary groups were contacted: United Mine Workers, AFL-CIO and the teamsters, General Motors, W.R. Grace and Co., CPC International, Chase Manhattan Bank, S. Mark, Inc., Honeywell, GTE and Xerox, the Knights of Columbus, American Federation of Teachers and B'nai B'rith Women.

Other projects of the breast cancer program include: 1.) a national breast cancer survey which will survey knowledge, attitudes and perceptions about breast cancer; 2.) a program for breast self-examination (BSE) in hospitals which is a model project for nurses to teach BSE to hospitalized patients. The program will be conducted in two geographic locations; rural and inner city; and 3.) a breast cancer patient education unit which is designed as an evaluation model program to inform and educate breast cancer patients.

Hard-To-Reach and Minority Project

Another project area of the Information Projects Branch is providing minority and "hard to reach" populations with appropriate and useful information and education about cancer causes, prevention, detection, diagnosis, treatment, rehabilitation and available sources of cancer care in the community. The target intermediary groups include health related groups with minority constituencies, non-health related groups serving mainly minority populations and minority media.

Activities for this year include preparing a special audience bibliography of public and patient education materials on cancer-related topics for more than 20 hard to reach and minority groups' sources of this information, experts on special audiences and other related special interest groups which could serve as intermediaries. Two targeted materials, "What Black Americans Should Know About Cancer," and "Lo Que Usted Saber Sobre El Cancer" ("What You Should Know About Cancer") a bilingual piece for Latino audiences have been developed. Publicity for these materials (upon completion) include special communications to select target groups, notices to health-oriented publications, and print ads in major Black and Hispanic publications. Other activities currently underway include radio spots to be used on the National Black Network stations, question and answer columns in targeted newspapers, story placement in major minority publications (Essence, Dawn Magazine, Black Monitor and Spanish Media) and revision of the Breast Cancer Information Program materials for Black and Hispanic audiences.

Coping Project

In order to plan positive and substantive programs for cancer patients and their families (Coping With Cancer), it was necessary to explore the psychology of the cancer victim and the mechanisms inherent with cancer. Thus the "Coping Project" was developed with three task areas: 1.) preparation of a bibliography covering the literature on coping. This bibliography is divided into four sections: family, patient, health professional and general information; 2.) a state-of-the-art paper entitled Coping With Cancer, A Sourcebook for the Health Professional. Its target is the health professional -- family physician, oncologist, nurse, social worker, psychiatrist, student -- or, more concisely, those whose need it is to help the cancer patient and those close to him/her cope with the disease. It can be used as an information book for reference and curriculum implementation, a guide for program planning, an indicator for future psychosocial and health education research needs and a source for the development of future patient, family and health professional information and education materials; and 3.) recommendations for OCC involvement in coping-related projects, which include target audiences, messages and message delivery strategies, a review of coping related materials and programs currently available.

Health Message Testing Service

The Office of Cancer Communications and the National High Blood Pressure Education Program/NHLBI jointly fund and administer the Health Message Testing Service. In its second year, this service was designed to help producers and sponsors of health public service announcements for television assess message potential at early stages -- before resources are committed.

HEW evaluation funds were awarded to this project to test a number of health messages over the period of one year and receive necessary feedback to prove the system before it became more widely used. During this time, 17 television messages and one radio spot were tested. These spots represent a variety of subjects and sponsors. Tested messages include topics such as: high blood pressure, breast self-examination, smoking cessation, offers for telephone assistance and printed materials on cancer, drug abuse prevention and others. Message sponsors to date have included: The American Heart Association, National High Blood Pressure Education Program of Connecticut Department of Health, Michigan Cancer Foundation, HEW's Office of the Secretary, and the President's Council on Physical Fitness.

These spots were analyzed for common elements or techniques which were most successful in the tests. Based on this preliminary analysis, guidelines will be proposed to assist voluntary groups and other health-related groups in developing effective public service announcements.

Staff also developed an information booklet on pretesting and strategies for communications programs entitled, "Pretesting in Cancer Communications." It describes strategies for developing a communications program and provides information on methods of pretesting, costs of program planning and other resources for pretesting. This publication has been distributed widely to many cancer communications programs and other interested groups.

REPORTS AND INQUIRIES BRANCH

Public and Congressional Inquiries

Because of OCC's mandate to disseminate cancer news to the public, more and more people are turning to the Institute for rapid and authoritative cancer information. This is documented through a major increase in public inquiries during the past year. With the assistance of a contractor, Biospherics, Inc., OCC answers inquiries in five major areas of activity: 1.) custom letters, which are individually prepared responses to inquiries from the public; 2.) controlled and Congressional letters, which are given special attention to provide short turn-around time; 3.) noncustom inquiries, which are answered by publications alone (no letter); 4.) publications distributed which includes materials mailed in response to noncustom inquiries as well as enclosures with custom, Congressional, and controlled letter responses; and 5.) WATS line telephone calls to NCI's 24-hour-a-day service.

The table on the next page provides a month-by-month statistical summary of these five areas of activity and shows a doubling in all but one category. From October 1, 1977, to September 30, 1978, the volume of custom letters remained at about the 14,000-a-year level, but the number of Congressional letters more than doubled, from 332 to 874; individual publications requests rose from 27,540 to more than 61,000; publications distributed rose from 1.6 million to 3.2 million; CIS telephone inquiries rose from 7,184 to 13,563.

TWELVE-MONTH CUMULATIVE COUNT OF LETTERS, PUBLICATION REQUESTS, PUBLICATIONS DISTRIBUTED, AND TELEPHONE INQUIRIES, BY CALENDAR MONTH FOR FISCAL 1978.

The figures for June through September are projected; a rise for August and September is expected because a Federal warning about the asbestos hazard is being mailed to 35 million recipients of Social Security checks and several million civil service and military retirees. The warning mentions that a brochure on asbestos may be obtained from the National Cancer Institute.

The year was highlighted by several major projects undertaken by the Institute to inform the public of cancer-related health problems. National magazines and newspapers publicized NCI's information on such topics as DES exposure *in utero*, irradiation-related thyroid cancer, smoking and health, breast cancer education, and hazards associated with asbestos. The services met the public demand despite frequent fluctuations in the volume of custom letters, telephone calls, and publications requests. In October and November, for example, more than 359,000 copies of *Did You as a Child or a Young Adult Have X-Ray Treatments Involving Your Head or Neck?* were distributed. The total reflects 50 percent of the total number of NCI publications distributed for the 2-month period.

PUBLIC AND CONGRESSIONAL INQUIRIES

Month	Custom	Congressional/ Controlled	Noncustom	Publications Distributed*	WATS Line Calls
October 1977	699	34	2,807	285,030	559
November	758	51	4,047	432,804	492
December	904	114	2,750	230,249	725
January 1978	882	80	9,836	179,187	858
February	790	117	8,930	192,281	634
March	1,097	101	4,244	284,878	777
April	1,561	76	4,818	211,285	1,499
May	1,868	61	4,969	182,971	2,319
June	1,000	60	4,500	200,000	1,200
July	1,000	60	4,500	200,000	1,500
August	1,600	60	5,000	400,000	1,500
September	1,600	60	5,000	400,000	1,500
12-Month Total	13,759	874	61,401	3,198,685	13,563

*Includes items mailed in response to pamphlet orders as well as those enclosed with custom and Congressional/controlled letters.

In December, the thyroid primer continued to be the most requested publication, followed closely by the DES publication, Were You or Your Daughter Born After 1940? and Breast Self-Exam. January marked the highest number of individual requests for Institute publications, nearly 10,000 largely in response to Institute promotion of the booklet The Smoking Digest. During January and February more than 58,000 copies of this book were sent to health planners, educators, legislators, and community leaders all over the country. More than half of February's total distribution consisted of Breast Self-Exam (109,622 copies), which had been promoted in several periodicals.

During the latter part of February, the Institute began its mailout to 400,000 physicians, hospital and nursing home administrators, and pharmacists to solicit medical records of cancer patients who have undergone Laetrile therapy. More than 6,700 returns were logged in March. The accumulation of records ended on June 1, 1978, and included 104 individuals referring one or more cases; 180 physicians who had knowledge of patients who had been treated with Laetrile and showed a negative response to the therapy; 19 respondents who noted a subjective response in cancer patients who had taken Laetrile; and 1,800 doctors who knew of no patients meeting the study's criteria.

The April volume of CIS telephone calls rose sharply to double the average number of calls per month for the previous year. The climb to 1,499 calls, and the elevation of custom letters to a total of 1,561, resulted from the promotion of the CIS telephone number and OCC's address. They were publicized as sources of further information in articles in Better Homes and Gardens, Ebony, Good Housekeeping, Woman's Day, and Vertical File Index, as well as on ABC television's "Good Morning America" program.

Telephone calls nearly doubled again in May, reflecting public response to Secretary Califano's announcement about the health hazards related to asbestos exposure and articles in the Reader's Digest, Woman's Day, and Good Housekeeping about breast cancer. Letters and noncustom requests also rose slightly over the previous month's totals because of the Califano news conference.

The asbestos announcement demonstrated that the Institute's 24-hour-a-day WATS line can serve as an important link between the public and the Government. The WATS line serves as backup to the 24 local CIS units and attempts to mesh with their procedures and to provide them with assistance, as needed. Their publications requests and other inquiries receive priority service. NCI sends copies of its phone logs to the CIS units and also attempts to comply with their local policies and procedures.

Individual requests for publications, more than 60,000 during the year, outstripped letter requests for information. At a warehouse facility, OCC houses more than 4 million publications, consisting of 265 different titles. These stocks are completely inventoried each month.

Fluctuations in the volume of custom letters during the year made it difficult to predict the number of letters from month to month, but a flexible staffing plan used by the contractor assured the prompt answering of public inquiries received by the Institute. The Standard Response Book was continually revised to assure the timeliness of all information used to answer written and telephone inquiries. The Book deals with the Institute's programs and funding; publications; information on cancer sites and types; questions on cancer detection or diagnosis; requests for statistics on cancer rates and risks; inquiries on cancer causes; information on cancer treatment or investigational studies; possible sources of assistance for cancer patients; and information on unproven methods of cancer management. Attempts are made to reach quickly when the public becomes interested in a new cancer topic, and new paragraphs are proposed for the Response Book. Information seldom used is regularly weeded out of the Book.

A number of other tasks have been performed during the course of the year. OCC mailed news releases about each new Bioassay Report as it became available. Special mailings of agenda of upcoming meetings and the minutes of previous meetings were performed for the Clearinghouse on Environmental Carcinogens. Each week, Cancer Surveillance Epidemiology and End Results Reporting (SEER) requests are filled. Requests are held on file for three months.

The special Institute advisories to physicians on DES and thyroid cancer were extensively analyzed. More than 10,000 requests for related thyroid publications and nearly 4,000 requests for DES brochures were analyzed according to half a dozen major criteria, including: total requests received, both lay and professional; total number of publications requested; type of organizations requesting publications; primary sources of inquiries; inquiries by States; and type of institution or individual making bulk requests.

In addition, staff of the Public Inquiries Section, OCC, replied directly to a number of non-WATS-line telephone inquiries from members of Congress and the general public. Congressional inquiries totaled 180. Two permanent staff members and, at various times, three information interns, responded to an average total of 75-100 telephone inquiries from the general public each working day.

The interns in Public Inquiries were: Miss Bonnie Jean Lau, who worked six months up to June 30 before returning to the University of Hawaii; Ms. Kathleen Conaboy, of the University of Nevada at Reno; and Mr. Channing Wheeler, of Stanford University, both of whom joined the section July 1.

Writers in the Section staff also prepared 22 cancer site pamphlets for physicians. These included information on: cancer (general pamphlet), bladder, bone, brain and spinal cord, breast, colon/rectum, esophagus, Hodgkin's disease, larynx, adult leukemia, childhood leukemia, lung, non-

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A member of the staff also wrote 10 newspaper columns for the NIH "Search for Health" series.

The Section head wrote a speech to be delivered by the Director, NCI, at the dedication ceremony of the newly established Inpatient Hospice Unit of the Washington Home, in the District of Columbia.

OTHER ACTIVITIES

The following manuscripts, documents, or briefing materials were developed:

1. Briefing book for use by Dr. Upton for his meeting with Secretary Joseph A. Califano on Cancer Prevention
2. Briefing book for use by Dr. Upton in his meeting with Secretary Joseph A. Califano on the National Cancer Program.
3. Collaborated with Pauline Wall in developing a series of about 30 charts, which were also reproduced as slides, on progress against cancer and the National Cancer Institute programs. These were used by Dr. Upton for a presentation to the National Advisory Council on Aging (National Institute on Aging), the briefings for the Secretary, and other presentations.
4. The NCI response to the Dan Greenberg article, "The Unhappy Lessons of Cancer Politics," Washington Post, 11/1/77.
5. Opening Statement (13-page version and 8-page version), Summary, and comprehensive document on the Cancer Prevention Program of the National Cancer Institute prepared for the Appropriations Committees of both the House and Senate for the FY 1979 Budget.
6. Manuscript entitled, "The National Cancer Program - 1977" for publication in U.S. MEDICINE, January 1978 (supervised contract writer).
7. Manuscript entitled, "The National Cancer Institute and Its Redefined Mission" for publication in GRANTS MAGAZINE.
8. Manuscript entitled, "The National Cancer Institute: Future Directions", adapted from an informal presentation by Dr. Upton to the 4th Annual Conference of the Oncology Unit of the Association of Community Cancer Centers, Washington, D.C., January 28, 1978, for publication in U.S. MEDICINE .
9. Article on cancer for the 1979 MEDICAL AND HEALTH ANNUAL of the ENCYCLOPEDIA BRITANNICA (supervised contract writer).
10. Preparation of answer to a question proposed as one Dr. Upton might be asked by the Appropriations Committee regarding opportunities for cancer prevention.
11. Editing of the Report of the National Cancer Advisory Board, 1977 (for calendar year 1976).
12. Abstract of Dr. Upton's presentation entitled, "Progress in the Prevention of Cancer" for the Symposium of the American Health Foundation on the State of the Art of Disease Prevention.

13. Draft of the House Appropriations Committee Report for FY 1979.

14. Draft of the Senate Appropriations Committee Report for FY 1979.

15. Justification for non-competitive procurement on Mr. Peter Pearman, a freelance writer, for production of the manuscript for the cancer chapter in the Surgeon General's Report on Smoking and Health, 1979.

16. Proposal for Dr. Michael Shimkin's third NCI contract, including justification for "sole source", for a manuscript of a collection of classical contributions to experimental oncology.

17. Dr. Upton's keynote address at the dedication of the Carcinogenesis Research Laboratories of Science Park, the University of Texas System Cancer Center, Smithville, Texas, June 8, 1978

18. Statement by Dr. Upton on the Role of Nutrition Research in Cancer before the Subcommittee on Nutrition, Senate Committee on Agriculture, Nutrition, and Forestry, June 13, 1978.

19. Began development of a public information pamphlet regarding the role of nutrition research in cancer, based on the statement prepared for the Subcommittee on Nutrition, Senate Committee on Agriculture, Nutrition, and Forestry.

20. Completed Director's Report, 1977 (for calendar year 1976).

21. Started Director's Report, 1978 (for calendar year 1977).

22. Under the chairmanship of Mrs. Norma Golumbic, the Umbrella Group in charge of OCC reorganization met several times, and thus was responsible for the large volume of reports, memoranda, etc., that were involved.

23. Ms. Nancy Brun joined the OCC staff beginning in September, as an assistant to Mrs. Golumbic.

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